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## DISEASE INCIDENCE IN GENERAL PRACTICE

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Pretoria

The incidence of various diseases in general practice in South Africa has apparently never been properly investigated. A search through the available literature produced no article on this important matter. The overseas journals are no better off. The object of this article is to ascertain the incidence of the disease entities as seen by the general practitioner, with a view to later correlating these findings with the actual percentage of teaching time spent on relevant subjects in the medical schools.

The figures here presented are those of a general practice in a large city. It would be interesting to compare them with those of a country practice. We believe that the cases from which these figures were compiled present a fair average of the city population. The patients were drawn from every stratum of society. A considerable part of the practice being industrial, however, the incidence of injuries will be higher than those of a practice consisting mainly of clerical or 'white collar' employees. All figures represent European cases only. The statistics are based on data of patients seen in the consulting room only. We realize that this is not a desirable state of affairs, but statistics on patients seen at home are unfortunately not available.

The percentages are given at face value and no claim is made for their accuracy as far as the diagnostic ability of the compiler is concerned, nor that they reflect the average as seen by other general practitioners. It has not been found practical to follow the accepted system of classification slavishly, because it would in many instances mask the true significance of the figures. The main grouping under the time-honoured large headings of 'Internal Medicine', etc. is merely done to facilitate reading; it must be obvious to the most casual observer that the large percentages in these 'specialities' serve only to emphasize the burning need for further subdivision. In some instances statistics of individual diagnoses are given where it is felt that such figures are of special interest.

The results of this investigation are as follows:

Total number of cases seen	1,013
Total number of consultations	2,169
Number of consultations per case	2.1

Adult Male	42.0%
Adult Female	42.6%
Children (under 10 years of age)	15.4%

1. Gynaecology and obstetrics	8.7%
Gynaecology (total)	5.7%
Menopausal	2.2%
2. Internal Medicine	26.2%
(a) Cardiovascular diseases	9.2%
Hypertension	2.4%
(b) Chest diseases	6.5%
Asthma	2.0%
(c) Gastro-intestinal diseases	6.6%
Peptic ulcer	1.7%
Dyspepsia and nonspecific gastritis	1.8%
Enteritis (including colitis)	2.2%
(d) Diseases of the blood	0.6%
(e) Common cold and influenza	3.0%
(f) Neurological diseases	1.7%
(g) Infective fevers	0.6%
(h) Parasitic infestations	1.1%
(i) Allergic reactions	4.8%
3. Surgery	26.4%
(a) Orthopaedics	6.0%
(b) Injuries	10.3%
(c) Arthritis	2.8%
(d) Tumours (benign and malignant)	2.0%
(e) Appendicitis	0.5%
4. Genito-urinary diseases	2.6%
5. Ear, Nose and Throat	9.7%
(a) Tonsillitis	4.9%
(b) Infections of the ear	2.2%
(c) Sinusitis	1.0%
6. Eye diseases	5.3%
Refraction	1.8%
7. Dermatology	7.9%
Fungus infections	1.3%
8. Psychiatry	9.0%
(a) Psychoses	0.5%
Epilepsy	0.4%
(b) Neurosis and functional diseases	8.5%
9. Certificates of health, vaccinations, etc.,	4.2%

### DISCUSSION

One of the first facts that come to light is the relatively low percentage of gynaecological cases. The same amount of time is usually spent in medical schools on the teaching of gynaecology as on the teaching of surgery or medicine. Yet,

from the above figures it appears that it falls in the group of so called 'minor' subjects like dermatology and diseases of the ear, nose, and throat. The only valid argument in defence of the present system would be that it takes a lot more to bring home to the student the basics of an internal examination than to train him to peer intelligently at a pair of tonsils.

The almost identical figures for surgery and internal medicine are remarkable; so also the close similarity between the disease incidence in the main anatomical systems in medicine. A few specific diseases are mentioned under the first 3 headings of internal medicine. The author remembers hours spent in the lecture room listening to learned and often rambling dissertations on these afflictions. After qualification the practitioner spends the same percentage of time listening to enthusiastic salesmen pressing the newest cure for these 'prevalent' conditions. That this amount of time is necessary to acquaint the doctor with the intricacies of a disease like asthma which, our figures show, constitute only 2.0% of cases seen suggests that we cover our lack of knowledge with unnecessary verbosity.

The small percentage of infective fevers is misleading. As these cases are mostly seen at home it is to be expected that the figure for consulting-room practice would be small. Owing to the fact that all cases seen in the consulting room are of necessity ambulatory, percentages in those complaints which seldom confine the patient to his bed will, of course, be unnaturally inflated. As already mentioned, the incidence of injuries reflects the industrial nature of the practice under consideration. It is interesting to note, contrary to what every layman with a pain in his side believes, that one can expect to have trouble from one's tonsils 9 times as often as from one's appendix.

Dermatology is still being regarded as one of the minor hurdles to be taken during the course of medical studies, yet it proves to be more or less on a par with gynaecology and diseases of the cardiovascular system. It is felt, even though practically all dermatological cases are ambulatory, that the high percentage is still significant. Psychiatry shows

an even worse state of affairs. During a year of attending lectures on psychiatry the author had the pleasure of hearing one dissertation on neuroses lasting 45 minutes. This was deemed sufficient to equip him for 8.5% of his practice! The rest of the year was spent on the niceties of the psychoses. It will be seen that the figure of 0.5% is mainly comprised of epilepsy (0.4%), a disease that was again fully discussed in lectures on neurology. The remaining 0.1% of general practice required a year of intensive lecturing on psychoses. Might this be due to the fact that the learned lecturers were in their own practices mainly concerned with certified psychotics?

#### CONCLUSIONS

The data compiled from the practice in question suggests that there is a marked lack of correlation between the time spent in the teaching of a subject and the actual prevalence of that particular disease in general practice. The discrepancies are in many instances so wide as to make it impossible to explain them satisfactorily on the grounds that all subjects, though of importance, do not require equal periods of study. As no figures on the incidence of disease in general practice have hitherto been available, one must come to the reluctant conclusion that the allotment of time to the various subjects was made on an arbitrary basis. It is to be hoped that more statistics will become available in the near future and that the syllabus in the medical schools will thereupon be revised, thus enabling the newly qualified doctor to be more logically, if not more fully, equipped for his task.

#### SUMMARY

Statistics of the disease incidence in a European general practice in a large city are presented. A comparison is made between the available data and the time spent in the medical schools on the teaching of these subjects. In many instances it is found that there are wide discrepancies between actual incidence and teaching time allotted.

### ADOLPH BASSER RESEARCH FELLOWSHIP

The Royal Australasian College of Physicians have requested the College of Physicians and Surgeons of South Africa to bring to the notice of graduates in medicine in South Africa, the Adolph Basser Research Fellowship. The term of the appointment will be for five years with a possible renewal for a further term. The Fellow must be a trained research worker in a field related to the problems of clinical medicine.

The Fellow will be paid at a salary at the rate of £3,750 Australian pounds per annum. He is expected to enter upon his research by a date to be arranged between him and the Council of the Royal Australasian College of Physicians, and a salary will commence from that date or in the case of an appointee from overseas, will commence from the date of embarkation at an overseas port, provided the appointee is proceeding direct to Australia to take up his appointment.

The research programme should show promise on a definite contribution to the knowledge of clinical medicine. The research must be done in Australia or New Zealand; the place in which the work will be done will depend to some extent upon the nature of the research of the candidate, and the candidate is required to set forth his requirements as to space and his wishes as to locality.

The Council of the Royal Australasian College of Physicians will respond for final arrangements in this regard and will do all in its power to establish the Fellow in a Research Department or an institute where he can fulfil his requirements set down in

these conditions. The Fellow will be entitled to four weeks recreational leave per annum during the five year term of his fellowship, and will be entitled to a total of three months sick leave on full pay and a further total of three months sick leave on half pay.

The Fellow will be required to prepare a statement on the work accomplished together with the list of publications for submission to the Council by the first day of October in each year. He will also be required in any publication to make due acknowledgment that the work has been carried out as the Adolph Basser Research Fellowship of the Royal Australasian College of Physicians.

Ten reprints of any publication will be furnished to the Council by the Fellow.

Applications should be addressed as soon as possible to The Honorary Secretary, Royal Australasian College of Physicians, 145 Macquarie Street, Sydney.

Applications should be typed in double spacing. Detailed information should be given under the following headings in the order set out: 1. Personal details. 2. Academic record. 3. Present appointments. 4. Previous research experience. 5. Contributions to the literature.

**Research Project.** 1. Field of Research. 2. Place of work. 3. Technical assistance.

Any further information considered necessary or relevant to the application, references should be submitted.

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## South African Medical Journal

### Suid-Afrikaanse Tydskrif vir Geneeskunde

#### EDITORIAL

##### THE NON-EUROPEAN MEDICAL SCHOOL

At its meeting in Johannesburg on 27-29 March the Federal Council of the Medical Association of South Africa had under consideration the change in the status of the medical school of the University of Natal (the Durban Medical School) which the Government had stated it intended to make. To effect this clauses were embodied in the Separate University Education Bill as first introduced. These clauses would transfer the control of this non-European medical school from the University of Natal to a Government department, and make the University of South Africa the examining body which would award degrees. The Bill would also impose in connection with the administration and staff of the medical school conditions similar to those which the Bill provides for the university colleges for Bantu persons to be set up by the Bill, and which have met with disapproval in many quarters.

The matter was first brought up within the Association at an emergency meeting held in Durban on 13 February by the Natal Coastal Branch, when a resolution<sup>1</sup> was passed vigorously protesting against the proposal; and it was this resolution which was before Federal Council. After debate Federal Council unanimously passed a resolution<sup>2</sup> expressing its grave concern at the proposed severance of the Faculty of Medicine from the University of Natal; and decided to ask the Minister of Education to receive a deputation on the subject. The resolutions were communicated to the Minister of Education.

In the meantime the Government decided not to proceed for the time being with the clauses relating to the Durban Medical School and the University of Natal, and, in view of negotiations which it was understood were proceeding, Federal Council decided to delay the publication and implementation of its resolution, in the hope that a favourable outcome might result from the negotiations. It is understood that this has not come about, and the resolution is therefore published in this issue of the *Journal*.<sup>3</sup>

The Bill has in fact been re-introduced in the House of Assembly without the clauses relating to the medical school of the University of Natal, but it is understood that the Government will introduce a separate Bill to fulfil its intentions in this matter.

#### VAN DIE REDAKSIE

##### DIE NIE-BLANKE MEDIESE SKOOL

Op die vergadering van die Federale Raad van die Mediese Vereniging van Suid-Afrika, gehou in Johannesburg op 27-29 Maart, het die Raad die verandering van status van die mediese skool van die Universiteit, Natal (die Durbanse Mediese Skool), wat die Regering verklaar het hulle van voornemens om te doen, oorweeg. Om uitvoering hieraan te gee, is klousules by die Wetsontwerp op Afsonderlike Universiteitsopleiding, soos eerstens ingedien, ingelyf. Hierdie klousules sou die beheer vanaf hierdie nie-blanke mediese skool van die Universiteit, Natal, aan 'n Staatsdepartement oordra, en die Universiteit van Suid-Afrika die eksaminatorliggaam maak, wat grade sou toeken. In verband met die administrasie en staf van die mediese skool sou die Wetsontwerp ook kondisies opleë, soortgelyk aan dié wat deur die Wetsontwerp opgestel sal word vir die universiteitskolleges vir persone van die Bantoe-ras, en wat die afkeuring uit baie kringe weggedra het.

Die saak is eerstens onder die aandag van die Vereniging gebring as gevolg van 'n spoedvergadering wat op 13 Februarie deur die Tak Natalse Kus in Durban gehou is, toe 'n besluit aangeneem is waarin daar ten sterkste teen die voorstel beswaar aangeteken is;<sup>1</sup> en dit was hierdie besluit wat voor die Federale Raad was. Na beraadslaging het die Federale Raad eenparig besluit<sup>2</sup> om hulle ernstige besorgdheid oor die voorgestelde skeiding van die Fakulteit van Geneeskunde van die Universiteit, Natal, uit te spreek; en het besluit om die Minister van Onderwys te vra om 'n afvaardiging oor hierdie onderwerp te woord te staan. Die besluite is aan die Minister van Onderwys oorgedra.

Intussen het die Regering besluit om nie vir die oomblik met die klousules in verband met die Durbanse Mediese skool en die Universiteit, Natal, voort te gaan nie, en met die oog op onderhandelinge wat, soos hulle verstaan het, voortgegaan het, het Federale Raad besluit om die publikasie en uitvoering van hulle besluit uit te stel met die verwagting dat 'n gunstige resultaat uit die onderhandelinge mag voortspruit. Dit word verstaan dat dit nie geskied het nie en die besluit word dus in hierdie uitgawe van die *Tydskrif*<sup>3</sup> gepubliseer.

Die wetsontwerp is inderdaad weer in die Volksraad ingedien sonder die klousules in verband met die mediese skool van die Universiteit, Natal, maar dit word verstaan dat die Regering 'n aparte Wetsontwerp sal indien om uitvoering te gee aan hulle bedoelings in verband met hierdie saak.

Die Mediese Vereniging van Suid-Afrika het niks te doen met party-politiek nie. Een rede hiervoor, maar slegs een,



The Medical Association of South Africa has nothing to do with party politics. One reason, but only one, for this is that the Association desires at all times to maintain such relations with the Government of the day—whatever political party is in power—as will ensure that the Association may always seek the assistance of the Government or offer advice or cooperation and be received as a friendly body and not as one politically hostile. Moreover, the Association of course numbers in its ranks members of all political parties and members with no party politics at all. But it would not be correct to say that the Association is not interested in politics (apart from the party aspect)—when, for instance, the public health or the efficiency of the medical profession is at stake.

It was in this light that Federal Council regarded the proposals concerning the Durban Medical School. It considers that it is important to the future welfare of medicine in South Africa that the University system should be maintained in the training of medical practitioners, no matter what the race of the student may be. It believes that it is in this atmosphere that medical training can be most effectively imparted, and the spirit of research flourish. It is clear that under the original draft Bill the Durban Medical School would not continue to enjoy what in the western world are recognized as University conditions. The Medical Association of South Africa therefore hopes that the Government will not proceed with the clauses which would separate the medical school from the University of Natal.

The Association, which numbers in its membership the great majority of South African doctors, took an important part in fostering the first establishment of a medical school as a faculty of a South African university in the days when all South African doctors were trained overseas; and it took a similar part in promoting the establishment of the non-European medical school in Durban as part of the University of Natal. It relied on the indications that had come from the Government of continued favourable acceptance of the University of Natal as the controlling body of this medical school, and it now appeals to the Government to give serious heed to the unanimous views of the Federal Council and the considered objections that have been raised in University quarters against the proposed transfer.

1. Report (1957): S. Afr. Med. J., 31, 179.
2. Published at p. 414 of this issue of the *Journal*.

is dat die Vereniging begeer om ten alle tye sodanige verhoudings met die Regering van die dag—watter politieke party ook aan bewind is—te handhaaf om te verseker dat die Vereniging altyd die steun van die Regering mag vra, of raad of samewerking aan te bied en om as 'n vriendskaplike, en nie as 'n politiek-vyandiggesinde liggaam ontvang te word nie. Bowendien is daar lede van alle politieke partye, en lede met hoegenaamd geen party-politiek nie, onder die geleedere van die Vereniging. Maar dit sal nie juis wees om te verklaar dat die Vereniging nie in politiek belangstel nie (afgesien van die party-aspek)—wanneer, byvoorbeeld, die publieke gesondheid of die doeltreffendheid van die mediese beroep op die spel is nie.

Dit was in hierdie lig dat Federale Raad die voorstellings in verband met die Durbanse Mediese Skool beskou het. Die Raad reken dat dit belangrik is vir die toekomstige welsyn van geneeskunde in Suid-Afrika dat die universitêre stelsel by die opleiding van mediese praktisyns gehandhaaf behoort te word, afgesien van wat die ras van die student mag wees. Hulle glo dat dit in hierdie atmosfeer is dat mediese opleiding die doeltreffendste deelagtig gemaak kan word en die gees van navorsing kan floreer. Dit is duidelik dat die Durbanse Mediese Skool, onder die oorspronklike Konsepwetsontwerp, nie sou voortgaan om universitêre toestande, soos erken in die westerse lande, te geniet nie. Die Mediese Vereniging van Suid-Afrika spreek dus die verwagting uit dat die Regering nie sal voortgaan met die klousules wat die mediese skool van die Universiteit van Natal sal skei nie.

Die Vereniging, waarvan die groot meerderheid van Suid-Afrikaanse geneeshere lede is, het 'n belangrike rol gespeel by die bevordering van die eerste stigting van 'n mediese skool as 'n fakulteit van 'n Suid-Afrikaanse universiteit in die dae toe alle Suid-Afrikaanse geneeshere oorsee opgelei is; en dit het 'n soortgelyke rol gespeel by die stigting van die nie-blanke mediese skool in Durban as deel van die Universiteit van Natal. Die Vereniging het staat gemaak op die aanduidings, wat van die Regering gekom het, dat dit sal voortgaan om goedgegunstig die Universiteit van Natal as die beherende liggaam van hierdie mediese skool aan te neem, en doen nou 'n beroep op die Regering om te let op die eenparige sienswyses van die Federale Raad en die oorwoë besware wat deur universitêre kringe teen die voorgestelde oordrag geopper is.

1. Verslag (1957): S. Afr. T. Geneesk., 31, 179.
2. Gepubliseer op bl. 414 van hierdie uitgawe van die *Tydskrif*.

## CANCER OF THE OESOPHAGUS

Three phases are discernible in the surgical therapy of malignant disease as applied to a particular organ. In phase 1 surgical techniques are perfected, and success is measured in terms of the number of patients surviving the operation and the immediate post-operative period. Phase 2 involves an assessment of the survival rate in terms of months and years. In phase 3 consideration is given to whether, on the basis of conclusions reached in the 2nd phase, surgery is as radical as is necessary, whether it is unnecessarily radical, or whether radiotherapy does not offer a better alternative. In cancer of the oesophagus, the end of phase 2 has been reached.

The oesophagus has proved a most difficult surgical field by virtue of its inaccessibility, its lack of a serous coat, its enclosure in structures where infection is dangerous, and because of the poor condition of the patient in whom this type of surgery is required. Not so long ago oesophageal surgery was considered beyond the scope of all but the most daring of surgeons. In 1908 Voelker first resected the cardia by an abdominal approach, and in 1913 Torek<sup>1</sup> performed the first successful transthoracic oesophagectomy. Lewis<sup>2</sup> considered 1938 to be a turning point in oesophageal surgery, bringing as it did an end to an era of 'elaborate and ingenious devices characterized by exterior-

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ization, invagination, cutaneous flaps, pull-throughs and Murphy buttons, all of which created new dangers and difficulties of their own'. By 1944 oesophago-gastrostomy by a left-sided abdomino-thoracic approach, for carcinoma of the lower third, had become a standard procedure, and a further stage was reached when Allison<sup>3</sup> advocated a block dissection for growths involving the cardia, whereby the whole of the stomach together with the lower third of the oesophagus, the spleen, the tail of the pancreas, the whole of the greater omentum, and the lymph nodes surrounding the left gastric artery, are removed *en bloc*. Franklin<sup>4</sup> points out that, because the dissection is carried out in an almost bloodless field, it is often less productive of shock than a less radical procedure.

Growths of the middle third have proved a much more difficult problem. The left abdomino-thoracic approach, popularized by Sweet<sup>5</sup> and by Garlock,<sup>6</sup> has long been the standard approach to middle-third tumours. One of the technical difficulties encountered by this approach is that it may be necessary to displace the upper oesophageal segment to the left of the aortic arch and, in operating from the left side, both pleural cavities may be opened. In 1946 Lewis<sup>2</sup> advised a right transpleural approach for tumours in this situation, the oesophagectomy being performed after preliminary mobilization of the stomach. The advantages of this are twofold. There is better access to the upper two-thirds of the thoracic oesophagus and the aortic arch, instead of being an obstacle, now becomes a safety barrier between the surgeon and the other pleural cavity. Sweet<sup>5</sup> condemned this approach, mainly on the ground that after mobilizing the stomach the surgeon might find the oesophagus unresectable, although Lewis<sup>2</sup> had shown that even under these circumstances a palliative short-circuit might still be a feasible procedure. Criticism of this nature was responsible for the fact that the Lewis operation failed to gain general acceptance, and it was not until 2 or 3 years ago that the very real advantages accruing from the right-sided approach were seen to outweigh the disadvantages.

Most recently, du Plessis and Heselson,<sup>7</sup> of Cape Town, described a technique which combines the advantages of the right-sided approach with an abdominal laparotomy and report a greatly facilitated oesophagectomy.

The last decade has seen a great improvement in the efficiency of the radio-therapeutic attack on cancer of the

oesophagus. Smithers<sup>8</sup> attributes this to the development of supervoltage X-rays and telecurie therapy units combined with accurate multiple-field or rotation techniques. He has surveyed the world literature for 5-year survivals, finding 135 cases. These he classified according to site and method of treatment, and from this survey it is clear that surgery gets its best results in the lower third, and radiotherapy in the upper third. Sweet,<sup>9</sup> who treated all his cases surgically, found a 15% survival rate for carcinoma of the lower third, and *nil* for the cervical oesophagus. At the Royal Marsden Hospital the survival rate for cervical oesophageal growths treated by radiotherapy was 11.5% and for the lower third 2%. Smithers, from his survey of the literature, found 15 5-year survivors from middle-third tumours treated by radiotherapy, and 7 who were treated surgically. From these figures it would appear that the survival rate of middle-third tumours is not very different whether treated by surgery or by radiotherapy. On the basis of this he argues that since so little success is obtained with either of the therapeutic measures available for cancer at this site, the advantages of radiotherapy, in which there is virtually no treatment mortality, and for which a shorter stay in hospital is required, weigh heavily in its favour as the treatment of choice. While there can be little doubt that surgery is the correct treatment for carcinoma of the lower third of the oesophagus and cardia, the treatment of middle-third tumours must of necessity depend on the relative efficiency of the surgical and radiotherapeutic techniques available in a particular area. It is of interest to note that radiotherapy has not been used for oesophageal cases at the Mount Sinai Hospital in New York, at the Lahey Clinic in Boston, and at St. James' Hospital in London, while at the Royal Marsden Hospital, London, of 249 cases treated, only 20 were resected, the remainder receiving radiotherapy.

1. Torek, F. (1913): J. Amer. Med. Assoc., **60**, 1533.
2. Lewis, I. (1946): Brit. J. Surg., **34**, 18.
3. Allison, P. R. and Borrie, J. (1949): *Ibid.*, **37**, 1.
4. Franklin, R. H. (1952): *Surgery of the Oesophagus*, p. 142. London: Arnold.
5. Sweet, R. H. (1945): New Engl. J. Med., **233**, 1.
6. Garlock, J. H. (1944): Surg. Gynec. Obstet., **78**, 23.
7. du Plessis, D. J. and Heselson, J. (1957): S. Afr. Med. J., **31**, 283.
8. Smithers, D. W. (1957): Ann. Roy. Coll. Surg. Engl., **20**, 36.
9. Sweet, R. H. quoted by Smithers, *loc. cit.*

## OESOPHAGEAL CANCER IN THE BANTU

R. J. W. BURRELL

Honorary E. N. T. Surgeon, Frere Hospital, East London

Concern about an apparent increase in oesophageal malignancy occurring in local Bantu stimulated the author to enquire into its prevalence in the Border area. This investigation was begun early in 1956. Because oesophageal malignancy had only been recognized among local Bantu in recent years, it was felt that a 5-year review of cases diagnosed at our local hospital should prove informative.

Relevant data were accumulated of 66 Bantu cases examined between 1952 and 1955. During 1956 a further 38 cases

have been investigated. The larger number for this year is attributed to the fact that local medical practitioners, and particularly our hospital interns who conduct general out-patients, are more alert to an earlier diagnosis of the condition. This series, therefore, comprises 104 cases of oesophageal malignancy in Bantu who attended the Frere Hospital, East London, during the 5-year period, 1952-56. This malignancy was diagnosed in approximately one of every 3,500 Bantu general out-patients.

### Town and Country Cases

For purposes of comparison the 104 cases were divided into urban (48) and rural (56). To prove their *bona fides*, urban cases were followed-up and established as having been resident within the Municipality of East London for at least 10 years. Most of them had made an occasional visit to their home-kraal in the country. Rural cases, on the other hand, were 'raw' and came from the Native Territories and from farms scattered over a wide area of the north-eastern Cape Province.

### Racial Incidence

De Bakey<sup>1</sup> found no difference in the incidence of oesophageal carcinoma in White and Negro Americans. Presumably there is no ethnological predisposition to this type of malignancy in the United States. In East London, however, the incidence of oesophageal malignancy shows a marked racial disproportion. Between 1952 and 1956, for instance, there were 5 Europeans and 48 Bantu who died of malignant disease of the oesophagus. Here, too, the incidence of cancer of the stomach differs in the two racial groups; only one case was recorded in an urban Bantu, as compared with 25 cases among European residents of East London:

1955 Population		Urban cancer of the Oesophagus	Stomach
46,250	Europeans .. ..	5	25
66,400	Bantu .. ..	48	1
adjusted for 100,000*	Europeans .. ..	10.8	54
	Bantu .. ..	72.3	1.5

### ACCURACY OF THE DIAGNOSIS

Opinion has been expressed that primary oesophageal carcinoma can only be diagnosed with certainty after autopsy examination and histological confirmation of necropsy. Willis<sup>2</sup> postulates,<sup>3</sup> however, could never be satisfied for local Bantu because both post-mortem dissection and removal of tissue from the dead body are taboo. The next-of-kin is in tribal honour bound to refuse consent to practices strictly proscribed by his primitive tenet. Moreover, such veto is respected by South African law.<sup>†</sup> Here, then, the ultimate diagnosis of oesophageal malignancy in the Bantu is confirmation of carcinoma in a biopsy—an optimum attainable only in a minority of cases. The diagnostician is too often thwarted by prejudices of stubborn Bantu custom.

Only 26 cases in this series were established histologically. In 78 cases the diagnosis was presumed; these, however, were admitted on such strongly suggestive evidence that the author rejects any academic contention that many of them were possibly wrongly diagnosed. The preliminary diagnosis in all 104 cases was made from 'text-book' signs of a barium swallow observed by a specialist in radiology, whose report was invariably 'almost certainly due to oesophageal malignancy.' Bantu cases in this series, unlike those of Europeans in hospital surveys overseas, presented themselves in an advanced degree of malignancy, when radiologically the extensive lesion (1½–4½ inches) showed marked irregularity of the

\* Oettle,<sup>3</sup> from a biopsy survey, described such a reversal of the malignancy ratio, oesophagus to stomach, among the two main racial groups in the Transvaal and the Orange Free State.

† Post Mortem Examination and Removal of Human Tissues Act. No. 30 of 1952.

affected segment with indisputable signs of ulceration in most instances. Apart from this, of these 104, the 26 that were subsequently proved histologically by a specialist in pathology were an adequate statistical sampling.

Included, therefore, are the 78 cases for which the diagnosis could only be presumed. They were, after all, an integral part of this clinical study. Had they been excluded, this report would have been no more than a biopsy survey and, as such, the author submits, a serious under-estimation of the prevalence of oesophageal malignancy among local Bantu.

### METHOD OF GRADING THE DIAGNOSIS

No diagnosis of oesophageal malignancy was accepted without the unequivocal corroboration of:

#### Macroscopic Appearances

(a) observed by the radiologist during the oesophageal passage of a barium swallow;

(b) noticed by the ear, nose and throat surgeon through oesophagoscopy as irregularities within the lumen and recognized as those characteristic of malignancy. Biopsy is taken for histological confirmation.

(c) presented to the general surgeon at thoracotomy.

A presumptive diagnosis of oesophageal malignancy was made from one or more of these independent authoritative opinions (a, b or c). With only one positive the diagnosis was classed as *possible*. Two or more positive opinions upgraded the diagnosis to that of *probable*.

#### Microscopic Appearances

When the histology of biopsy from the oesophageal growth was finally established by the pathologist as carcinoma, the diagnosis was elevated to *definite*.

### DIAGNOSTIC ANALYSIS OF 104 CASES

	Urban	Rural	Total
Definite .. ..	15	11	26
Probable .. ..	9	2	11
Possible .. ..	24	43	67

Reference to the hospital records explained why a diagnosis could only be presumed *probable* in 11 cases, and *possible* in 67. The former is attributable to errors of technique and the latter to circumstances over which we had no control.

### DIAGNOSIS PROBABLE (11 CASES)

Oesophagoscopy by ear, nose and throat surgeon was negative .. ..	5
Oesophagoscopy by general surgeon preparatory to open operation, but no biopsy taken .. ..	3
Partial oesophagectomy but specimen not submitted to the pathologist for histological opinion .. ..	3

A negative histological report, with positive oesophagoscopic appearances, was received in 3 cases with almost complete obstruction, when the 'pin-point' entry to the stenosed, malignant segment precluded intrusion of the biopsy-punch; and in 2 cases where the biopsy, intended to snip its growing edge, must have missed the growth altogether. Another such case, negative in the first instance, was proved to be positive histologically in a second biopsy. Our present practice is to take 2 or 3 punches of the growth.

The diagnostic procedure now adopted at the Frere Hospital is referred to as 'Operation Crop', signifying the combined team-work of clinician, radiologist, oesophagoscopist (ear, nose and throat surgeon) and pathologist. Only after the diagnosis has been established is the general surgeon consulted. Before 'Crop' was instituted there were at least 6 cases (reflected above) which might have been proved *definite*.

In nearly 2/3rds of cases in this series the diagnosis could only be presumed *possible*. The reasons for this were:

#### DIAGNOSIS POSSIBLE (67 CASES)

##### After positive barium radioscropy

Patient did not come back to hospital .. .. .	33
Admitted but before any further investigation could be undertaken, patient insisted upon being discharged ..	9
Admitted very much later—in <i>extremis</i> .. .. .	13
No bed available in Frere Hospital, so being a rural case was referred for admission and palliative gastrostomy to another Provincial hospital or a mission hospital nearest to the patient's home-kraal .. ..	12

#### FACTORS LIMITING DIAGNOSIS IN BANTU

Follow-up enquiries were instigated to find out why, after positive barium radioscropy, 33 failed to re-attend, even when informed that a bed had become available for their admission. An explanation was also sought for the 9 warding patients who, without offering any reason, insisted upon being discharged and so technically 'refused further hospital treatment'.

The insurmountable difficulties of advancing the diagnosis in an enormous number of Bantu cases can best be appreciated by those practising in this field. They are summarized here to account for 42 cases of this series in which the diagnosis could only be presumed *possible*.

**Non-Attendance after Barium Radioscropy.** Local Bantu cherish the notion that the impressive X-ray procedure is therapeutic. Many allege that they experience a measure of relief afterwards and all entertain the hope of being cured by such magic. When disillusionment creeps in, the Bantu become reconciled to dying. Follow-up of 18 urban cases disclosed that 11 had been conveyed by expensive taxi to the traditional place-of-death, the home-kraal; and that 2 had died in the Municipal location. No information could be obtained about 5 cases, their intimates refusing to discuss anything about the deceased whilst the soul was still 'hovering' (*vide infra*).

**Self-discharge of In-patients.** Upon premonition of death, local Bantu in-patients usually demand their discharge from hospital and to be transported by relatives to the home-kraal. That is where the family will observe strict mourning rites, extending for a year or longer. At the end of that period a ritual, *ukubuyisa*, will be performed 'to summon the return' of the hitherto detached soul of the deceased for assimilation into the assembled body of ancestral spirits.

**Aversion to Autopsy and Necropsy.** If the patient dies in hospital the next-of-kin will almost always withhold permission for post-mortem dissection, an act of disrespect and one likely further to upset the already perturbed soul of the deceased. Particularly do Bantu abhor necropsy. These taboos are rooted in their concept of an anthropomorphic survival in a Hereafter. The remains will be conveyed to the home-kraal (urban neighbours contributing

liberally to the cost of transport). There, the body will be buried in the cattle enclosure, the restless soul 'hovering' until *ukubuyisa* is celebrated. Only then can the soul be assimilated to the company of ancestral spirits who dwell in an Underworld of Concord and Happiness.

#### OBTAINING OF CASE HISTORY

The taking of a history by a medical man immediately puts the Bantu on guard. The witch-doctor does not have to ask any questions. He 'smells out' what is wrong. Why cannot the medical doctor, with so many more 'bones' and an infinite knowledge of magic, do likewise?

There is mounting evidence that even the 'raw', rural Xhosa has an insight into *umhlaza wombiza*, 'a sore inside the gullet which never heals'. This affliction is attributed to having drunk, at a stranger's kraal, kaffir-beer which was 'poisoned' by someone intent upon avenging an old score. So dreaded is this disease that, in the initial stages, there is a psychological reluctance on the part of local Bantu to admit of any embarrassment or difficulty in swallowing. Interrogation by the inquisitive medical man merely drives an apprehensive Bantu patient into the depths of introversion. It elicits nothing but a series of evasions. If questioning is persisted in about a symptom which has not been experienced, there is danger of the patient's acquiescing to sensations which have not been perceived. So the history, already riddled with contradictions, becomes tainted with inexactitudes of suggestion.

In the author's opinion, the taking of a history directly from the Bantu patient is an unreliable approach to the early diagnosis of oesophageal malignancy.

#### Street Gossip

To make them more instructional, therefore, case histories in this series were compiled *after* the diagnosis of oesophageal malignancy had been corroborated. Not infrequently, prodromal symptoms were recorded on the out-patient cards of urban cases. In order to augment these bald statements, the author devised an eavesdropping campaign which was undertaken by a paid Bantu investigator. Street gossip, after the 'hovering' soul of the deceased had been assimilated, provided every detail already known to the author from out-patient cards but about which the Bantu investigator had not been informed. Indeed, so accurate was street gossip in these 'control' cases that credence had to be considered for those case histories which could not be similarly substantiated. The original Bantu investigator was deployed to work on rural cases. In his absence Bantu welfare workers volunteered to re-check the street gossip, already obtained, of urban cases for which the out-patient cards were uninformative. Their independent reports were identical in essential detail with those of the paid Bantu investigator.

In this way were ascertained the symptoms of which 41 urban cases had complained, either in the out-patient department or to close friends in the Municipal location, *before* oesophageal malignancy had been detected by barium radioscopic examination.

These prodromata are presented below in detailed tabulation. Meanwhile, their pathognomonic significance is revealed by our knowledge of the insidious spread of primary oesophageal carcinoma in Europeans overseas.



## SPREAD OF OESOPHAGEAL CARCINOMA

Analysis of Dormann's<sup>5</sup> monumental review of autopsy findings in Germany<sup>5</sup> disclosed that, for every 500 cases of oesophageal carcinoma, the primary lesion had spread as follows:

	Upper	Middle	Lower
Number of cases per third	100	185	215*
<i>By invasion</i>			
Trachea and bronchi	74	107	47
Lungs and pleura	0	26	90
<i>By metastasis</i>			
Lungs and pleura	32	37	39
Mediastinal glands	22	100	112

It is presumed that Dormann's<sup>5</sup> findings in European autopsies may obtain for the spread of oesophageal carcinoma in the Bantu. Invasion of the tracheo-bronchial air passages, then, must be a common sequel of malignant lesions of the upper and middle thirds, and invasion into the lungs and pleura frequent from neoplasia of the lower third oesophagus. Add to this a smaller, yet equally important infiltration into the lungs and pleura from all thirds by metastasis, and extension into the respiratory system becomes almost an inevitable characteristic of oesophageal malignancy. Ackerman and del Regato<sup>6</sup> emphasize that its spread into the thorax, usually at an early stage of malignancy, proceeds unimpeded because the oesophagus has no serosal covering.

In every obscure chest condition, therefore, and especially when radiography is negative, the possibility of an unsuspected oesophageal malignancy should be investigated.

## ANALYSIS OF CASE HISTORIES

Constant prodromata in Bantu case histories of this series can be interpreted as having resulted from peri-oesophageal and intrathoracic infiltration from a primary oesophageal neoplasm. Many cases, for instance, had attended the general out-patient department of the Frere Hospital, some for as long as 18 months 'not yet diagnosed', until these symptoms were eventually recognized as possibly being due to a primary oesophageal malignancy.

Besides the 41 urban case histories garnered from records on their out-patient cards and from posthumous gossip, accounts of complaints leading up to a tentative diagnosis of oesophageal malignancy in 18 rural cases were kindly furnished by colleagues in the mission field. (My Bantu investigator found that kraal-dwellers refused to share their private gossip with outsiders.)

The initial symptoms in these 59 cases are analysed as follows:

*Retrosternal Pain* (21 cases: urban 13, rural 8)

Occurs 2-18 months before manifestation of dysphagia.

The pain is often localized as a backache (T.3 to T.6), when it is not thought to be caused by anything sinister. Chronic heart-burn, *silungulele*, is ascribed to sorcery. *Umhloza wombiza* is feared when retrosternal pain is aggravated by

\* The number of cases, 100 upper third, 185 middle third and 215 lower third, were purposely selected by the present author to represent proportions of 20% upper third, 37% middle third and 43% lower third. In reviewing no less than 8,572 cases of oesophageal carcinoma from the medical literature, Ochsner<sup>4</sup> had found that those were the percentages for each oesophageal third primarily affected.

swallowing or is radiated into the left side of the neck during the act. (Hoover<sup>7</sup> contends that retrosternal pain signals invasion of the vagus nerve by the malignant process.)

*Chronic Unproductive Cough* (16 cases: urban 11, rural 5)

Occurs 8-12 months before manifestation of dysphagia.

Bantu associate chronic cough with phthisis and this was also suspected in this group of cases, though none had positive sputa or radiographic signs. Subsequent barium radioscopy demonstrated 7 with oesophago-tracheal or oesophago-bronchial fistula.

*Difficulty in Swallowing* (8 cases; urban 6, rural 2)

Usually recorded in late stages. If complained of as an initial symptom, the dysphagia is painless and progressive. The psychological reluctance of the Bantu to admit dysphagia has already been discussed.

*Periodical Vomiting* (6 cases; urban 4, rural 2)

Occurs from 2 weeks to 4 months before the diagnosis is established.

Following episodes of vomiting immediately after the ingestion of solid food, the patient takes to a fluid diet, with fairly rapid loss of weight, and soon afterwards signs of dehydration appear.

*Minor Bouts of Haematemesis* (4 cases, all urban)

Occur from 10 weeks to 3 months before consulting medical man.

Of 19 Bantu admitted to hospital from 1952 to 1956 for investigation of this solitary complaint, 4 were eventually diagnosed as cases of oesophageal malignancy.

*Sialorrhoea with Regurgitation* (4 cases; 3 urban, 1 rural)

Occurs 2-5 weeks before consulting medical man.

A reflex of oesophageal obstruction, profuse salivation always warrants barium radioscopy. It is particularly excessive in malignant disease of upper third, when saliva and mucus wells up in the segment of the oesophagus proximal to the obstructing lesion.

*Left Cervical Adenopathy*

Peanut- to walnut-sized hard glands were noted in the left supraclavicular fossa in over 20% of cases in this series.

In one interesting case the only complaint was a fungating mass in the left lower neck. Biopsy established it as a squamous carcinoma. An enterprising intern suggested barium radioscopy and an unmistakable malignant growth 2 inches long was demonstrated in the mid-lower third of the oesophagus. The patient, from the country, did not re-attend and was never traced.

## DIET IN RELATION TO OESOPHAGEAL MALIGNANCY

Considered in relation to which third of the oesophagus was primarily affected, a comparison of the 48 urban and 56 rural cases showed that lesions of the middle third predominated in Bantu town-dwellers:

	Third	Urban	Rural
Upper	..	6	9
Middle	..	33	25
Lower	..	9	22

Further broken down into sexes, the middle third represented almost 70% of oesophageal malignancy in urban Bantu males:

	Males		
	Third	Urban	Rural
Upper	..	4	7
Middle	..	25	18
Lower	..	7	14

Anatomically, the middle third is characterized by a normal narrowing of its lumen—a compression where the oesophagus is crossed first by the aorta and shortly afterwards by the left main bronchus. This natural constriction extends for about 2 inches. Not only is this portion narrower but it is also less distensible than the rest of the oesophageal tube. In it foreign bodies are likely to get stuck, and it is a common site for the stricture that follows corrosive burns. Probably its epithelium is particularly vulnerable to abrasions from a rough diet.

#### Diet Peculiar to Local Bantu

The staple article of food for most Bantu is maize (mealies). Stamped mealies is the form in which it is consumed in the Cape. Mealies are merely crushed into coarse fragments; the process of stamping is not continued until these broken pieces become ground into a flour (mealie-meal), husk particles being blown away during agitations. Mealie-meal is the form used as food by most Bantu tribes throughout Southern Africa.

Stamped mealies, therefore, is a food peculiar to the Xhosas. The author was attracted to the possibility of the sharp edges of their ragged pericarp being an agent likely to traumatize the lining of the middle third of the oesophagus, the site of predilection for malignancy in urban Bantu males.

Packets of stamped mealies were purchased from several 'kaffir stores' in the vicinity of the Municipal locations and mixed. Unprepared samples were then cooked for periods varying from 20 minutes (undercooked and starchy) to an hour (palatable). Contrary to expectations, in all samples their residual fibre was low (0.76-1.05%) and the grit content was negligible. These tests indicate that stamped mealies, even when undercooked, must be accepted as a smooth diet and a food unlikely to cause any mechanical hurt to the oesophageal epithelium.

#### Oral Heat Tolerance

The majority of urban Bantu male labourers, having quenched their thirst on awakening with home-brewed kaffir-beer, set off to work shortly after daybreak. Usually they eat nothing at midday; most of them sleep in the sun. On returning home from work at sunset, these men are naturally ready for their first solid meal of the day. Although previous investigators had found that Bantu take a long time over their food and eat it cold, there was the possibility that local Bantu labourers might gulp their stamped mealies hot. Perhaps habitual thermal trauma was an etiological factor in their high incidence of oesophageal malignancy.

It was not thought advisable, however, to make any attempt to measure, *in loco*, the temperature at which urban Bantu eat their food. Even the town-dweller would resist, for instance, insertion into his food of such a strange object as a thermometer. He would become suspicious that the investigator intended to 'poison' the food.

Individuals who prefer eating their food really hot must have a correspondingly high oro-pharyngeal heat tolerance. Preliminary tests with friends showed that their oral heat tolerance about equalled the temperature at which they

preferred drinking their tea. An indirect procedure was then devised to estimate the oral heat tolerance and, using the same subjects, this was tested against the direct method. The findings coincided. It was decided, therefore, to use the new indirect procedure to estimate the oral heat tolerance of the Bantu.

The Bantu males tested were those undergoing routine medical examination before being employed by a local commercial concern. The long-suffering Bantu investigator, included as a decoy, was always the first to be tested. After mouth inspection, examinees were required to rinse with the test mouth-wash.

Eight fluid ounces of glycothymol was added to 4 quarts of boiling water in a large enamel jug. The falling-off in temperature was measured every  $\frac{1}{2}$  minute and recorded on a chart.

An identical solution was prepared to synchronize with mouth inspections and simultaneously the stop-watches were started, one for each subject being tested.

The mugful of test mouth-wash handed to the examinee after his mouth had been inspected varied in temperature from 87° to 79°C (5 minutes to 9 minutes after cooling off, respectively). It was far too hot to rinse the mouth with. After some unsuccessful attempts, the task was completed. The stop-watch time registered at that moment was referred to the chart, from which that individual's oral heat tolerance was read.

Oral heat tolerances of 31 healthy Bantu male labourers were between 53° and 62°C, almost the same as the range of temperature-preferences of tea-drinkers in England.\*

Also tested were 5 Bantu with proved oesophageal carcinoma. Their oral heat tolerances were much higher, from 69° to 75°C., temperatures nearing those at which (according to Davis and Ivy<sup>9</sup>) the Argentinians are reputed to eat their food (up to 80°C). They, too, have a high incidence of oesophageal carcinoma.

#### DOMICILE OF THE URBAN CASES

Mention has been made of a series of follow-up enquiries, originally made to establish the *bona fides* of the patients' claim to be residents of East London and later to eavesdrop street gossip for their case-histories. It was whilst making an address-list for the Bantu investigator that the author noted that some cases had been close neighbours. More significant was the discovery that, between 1952 and 1955, all but 3 urban cases had resided in the East Bank location and that none were recorded from either of the other two, admittedly very much smaller, locations at the West Bank and at Cambridge. The 3 'outside' cases had slept on their employers' premises.

This limited distribution of urban cases occurring exclusively in the East Bank location, with a few who slept on their employers' premises, obtained for the entire 5-year period covered by this report.

Place of Residence	Nett Population*	Cases
East Bank Location ..	44,610	43
West Bank Location ..	5,660	0
Cambridge Location ..	1,070	0
Employers' Premises ..	12,200	5

\* From a recent survey by Dr. D. H. Reader<sup>10</sup> (*vide infra*).

### Plotting of Urban Cases

As soon as it was realized that most urban cases (90%) came from one particular locality, an official map was acquired of sufficiently large scale to show every house and shack in the East Bank location. Individual cases were plotted on it. The diagrams in Figs. 1, 2 and 3 were traced from photographic reductions of this 'master' street plan.

Fig. 1 localizes 29 of the 32 urban cases recorded from 1952 to 1955. There were two distinct groupings: (1) inside a small circle north of a disused brickfield; and (2) within a larger ellipse in an older part of the East Bank location.



Fig. 1. Urban cases (29) East Bank location, 1952-55.

Two cases to the S.W. and 3 cases N.N.W. of this ellipse were at first thought to be 'fringe' cases and supplementary to the main aggregation.

As they were diagnosed at the Frere Hospital during 1956, East Bank location cases (14 of the total of 16 urban cases for the year) were plotted on the 'master' street plan. It was fully expected that most would have lived in the 'black spots' already defined; none had. Fig. 2 locates the 1956 cases. An entirely new grouping appeared, south of the disused brickfield, now reclaimed for a school site. Here again, there were 'fringe' cases, 5 of them, scattered on the periphery.

### Recapitulation of Salient Facts

1. Nearly 90% of urban Bantu with oesophageal malignancy diagnosed at the Frere Hospital between 1952 and 1956 had lived in one particular area, namely, the East Bank location.

2. These 43 cases had lived in 3 well-defined groups, a few of them being dotted on the fringes of the main concentrations.

3. Whereas before 1955 the cases had occurred sporadically in either of 2 zonal groupings, after 1955 all cases were found in an entirely new zone; so that another 'black spot' appeared in the East Bank location.

The complete and sudden change in locality of cases in 1956 presented a problem. That this should have happened precisely at the end of a preliminary 4-year search of the Frere Hospital records was fortuitous.

### Interpretation of 1956 Shift

Friedewald and Rous' studies of tumour induction<sup>11</sup> suggest that a normal cell has first to be initiated into a

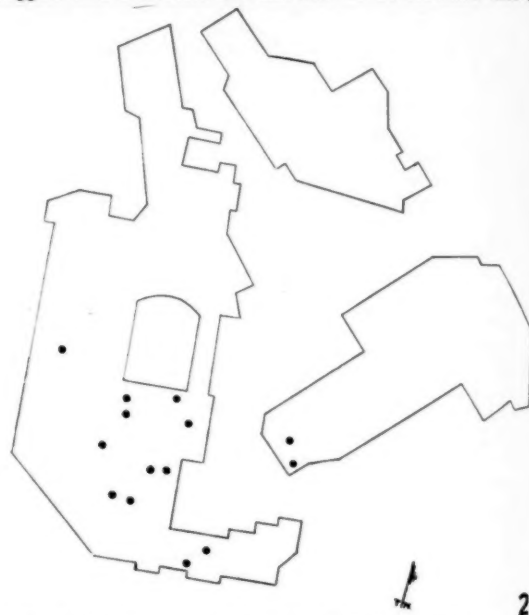


Fig. 2. Urban cases (14) East Bank location, 1956.

potentially neoplastic cell; then, after a dormant period, it may be promoted (stimulated) to assume cancer-autonomy. Another interval, during which prodromal symptoms occur, must elapse before the newly malignant cells develop into a tumour capable of manifesting itself clinically. Finally, there is a terminal phase from tumour-manifestation to cancer-death. The shortest period between cancer-initiation and cancer-death in this series appeared to be about 3 years.

On 9 November 1952, serious anti-White rioting broke out in the elliptical area shown in Fig. 1. An ugly situation was promptly brought under control by the South African Police, who thereupon started a systematic cleaning up of vice centres. No mass migration of Bantu residents followed. It was the shebeen queens who moved—to contaminate fresh fields.

From 1953 onwards, therefore, oesophageal cancer was initiated in a new 'black spot' wherein cases first began to die in 1956.

### MODERN TRENDS IN ILLICIT LIQUOR

Shebeen queens have long since abandoned the sale of *nkumpa*, i.e., kaffir-beer 'fortified' with immature wines

and bra but their Xhosa customer behaviour attracted appearance bad for cidiviki v its alcohol ladies-in to ensure

'Fringe' location (Fig. 3), these clay drums—hessian and bro the 'den'

Fig. 3.

these are is prepare brew is st 'Fringe' c depots.

Fermentat

The hea clay-pits a ally used asphalt, a proportion liquid. T



and brandy. Not only were those liquors hard to come by but their price on the black market was exorbitant. Besides, Xhosas cannot hold their liquor. When *nkumpa* was taken, customers turned nasty and were invariably guilty of behaviour unbecoming a proper 'den'. Rowdiness inevitably attracted police attention and raids resulted in embarrassing appearances of a shebeen queen in Court. *Nkumpa* was bad for business. Shortly after the end of the 1939-45 war *cidiviki* was introduced. The new concoction has two virtues: its alcoholic content is sufficiently exhilarating to amuse the ladies-in-waiting, and its acetylene content soporific enough to ensure the shebeen queen's peace of mind.

'Fringe' Cases. An aerial photograph of the East Bank location offered a clue to the meaning of 'fringe' clusters (Fig. 3), each of which abutted upon a large clay-pit. In these clay-pits were found, buried to the brim, 44-gallon drums—their presence camouflaged with coverings of hessian and corrugated iron, then layer upon layer of sticks and broken undergrowth. Situated some distance from the 'den' and always on the outskirts of a built-up area,



Fig. 3. 'Fringe' clusters in relation to clay-pits.

these are the brewing sites of *cidiviki*. Here the concoction is prepared and allowed to ferment. Here the final, coarse brew is strained before supplies are delivered to the 'den'. 'Fringe' cases were probably attendants at such storage depots.

#### Fermentation Receptacles

The heavy-gauge (18) 44-gallon drums found buried in clay-pits are known to the trade as R.C.2. They are specifically used by the refinery to distribute cut-down petroleum-asphalt, a product consisting of asphalt with a variable proportion of spilt-over fuel-oil as a solvent; this is a viscous liquid. To facilitate emptying, it is common practice to

puncture non-returnable R.C.2. drums with multiple pick-holes. Of no further commercial use, 'empty' drums are sold for half-a-crown apiece. These and other (petroleum-asphalt-emulsion) drums find a ready market throughout the Border and Transkeian Territories. Bantu transport riders convey them afar in donkey-drawn wagons. The ingenious Bantu panel-beats the pick-axe gashes to slits and plasters the leak-points with daubs of clay, on the outside. On the inside, repair is completed by using a red-hot assegai-head to mould the residual coating of the R.C.2. drum's original content, namely, petroleum-asphalt together with a non-volatile fraction of fuel-oil that had been incorporated as its solvent.

#### Cidiviki

Shebeen queens subcontract out the preparation of 4-gallon paraffin-tinsful of 'raw' material, the basis of *qomboti*, or kaffir-beer. This consists of cold mealie-meal porridge (or a mash of stale bread-crumbs) into which are inserted sprouting millet (alternatively bird-seed). In 48 hours fermentation will have reached a peak, its alcoholic content, however, never exceeding a modest 4%. Quantities of this innocuous 'base' are brought and emptied into the buried drums in the clay-pit.

On a personal visit to her 'base' the shebeen queen adds a variety of ingredients which will effect its transformation to *cidiviki*. Every shebeen queen has her own secret agents, but 4 ingredients are common to all recipes. They are: (1) baker's yeast, (2) crude carbide, (3) a well-known brand of liquid metal-polish, and (4) fruit that cannot be sold on the European market. Mouldy raisins and damaged grapes were used before the recent establishment of a local pineapple cannery whose 'genackered' waste is scavenged daily by the sacksful from a dump situated close to the southern boundary of the East Bank Location.

#### Leaching Out of Carcinogens

Certain distillates of crude petroleum have long been proved to be cancer-producing. Notorious are those with high boiling-points, such as lubricating oil, fuel-oil and petroleum-asphalt. Theoretically, fermentation of the *qomboti* base with baker's yeast and pineapple waste would evolve enough organic solvents, but what better than methyl alcohol, the vehicle of most liquid metal polishes? The inference must surely be that *cidiviki* contains sufficient solvents to leach out carcinogens which are probably present in the  $\frac{1}{4}$ -inch coating of R.C.2. drums in which this vicious brew is fermented.

#### Narcosis

It will be recalled that shebeen queens switched to *cidiviki* because of its somniferous property. This undoubtedly accrues from the carbide. Acetylene is a fairly potent and yet trouble-free anaesthetic. Induction and recovery are rapid and, when an adequate air intake is allowed, depth of anaesthesia never descends below the sensory level. Unconscious, therefore, but with his motor functions unaffected, a spent 'den' customer can be trundled out and left in the bush to 'sleep it off'. By early morning, South African Police patrols inform me, the bushes in certain areas (indicated as being close to 'fringe' clusters, for instance) are littered with narcotized men. They do not smell of *dagga*; their breath is reminiscent of pineapples. Another function

is now assigned to 'fringe' attendants, namely that of clearing the 'den' of customers who have passed out.

#### Local Anaesthesia

The Superintendent of the East Bank location tasted *cidiviki*, confiscated on a raid, and experienced a numbness in his mouth which lasted for some hours. The author did likewise, holding a mouthful for 30 seconds. Thereafter taste-bud sensations were imperceptible and oral heat tolerance, previously 49°C, was raised to 54°C. After an hour the still tasteless tea could be held in the mouth without thermal discomfort at 52°C. A second mouthful of *cidiviki* retained for 30 seconds and, in another hour's time, a third mouthful retained for 15 seconds raised the author's oral heat tolerance to 58°C. Taste and normal oral heat tolerance returned after 12 hours.

#### Trade-mark

Of 29 females in this series of cases of oesophageal malignant disease, 14 were admitted to hospital and the case-sheets of 3 urban females recorded 'mottled lips'. The author has examined the mouths of 5 'shebeen queens' after raids and found 2 with buccal leucoplakia and all with varying degrees of superficial glossitis, gingivitis and dental caries. An outstanding feature, however, was their 'white lips', which the police recognize as the trade-mark of shebeen queens. The most feasible explanation of these stigmata was provided by a reformed rake. 'Den' customers require as a formality that the shebeen queen should first taste the brew, so to prove that her *cidiviki* has not been 'poisoned'.

Another peculiarity noted by the author was the distribution of altered skin pigmentation around the eyes and over the upper malar prominences—dark rosette spots on a lighter background.\*

#### CONCLUSION

All the evidence in this study points to *cidiviki* as being the agent responsible for the strictly localized occurrence and the exceptionally high incidence of oesophageal malignancy among Bantu resident in East London. The author submits that this wicked brew contains:

##### 1. Cancer initiators

- from dried-out cut-down petroleum-asphalt, including the non-volatile fraction of fuel-oil; and/or
- from highly complex compounds, asphalt-substitutes which result from the petroleum industry's employing  $Al_2O_3$  or the like in the catalytic cracking process.

##### 2. Cancer promoters

- from the petroleum carcinogens themselves; and/or
- from chronic thermal traumata (particularly to the normally constricted middle third of the oesophagus) through the local anaesthetic action of *cidiviki* in the upper alimentary tract which increases heat tolerance, thereby encouraging an abnormally high temperature preference for food in those who have become addicted to the drink.

Much has still to be done to substantiate this indictment. Oral tolerance tests require to be carried out to statistical

\* An ex-witch-doctor, now self-styled as an African herbalist, informed the author that, in his profession, such blotching is regarded as an evil sign, the 'mask of a leopardess'.

adequacy for normal 'controls' and to be undertaken as a routine in all cases of suspected or established oesophageal malignancy. Facilities should be made available locally for the chromatographic and spectrophotometric analyses of *cidiviki*. Being explosive, samples cannot be sent elsewhere for that purpose. Its effect on experimental animals might also be investigated.

#### DEMOGRAPHY

By a unique coincidence the urban Bantu population of East London was minutely studied during 1955 by Dr. D. H. Reader, of Rhodes University, as part of an extensive regional survey and under the aegis of the National Council for Social Research.

The precise structural composition of the population-at-risk, therefore, had recently been determined. This made it possible to assess the incidence of oesophageal malignancy occurring among urban Bantu in the East Bank location. The rate per 100,000 per annum must be one of the highest ever recorded:

##### POPULATION-AT-RISK

Age-group	Males	Females
35-44 .. ..	4,270	2,990
45-54 .. ..	2,160	1,540
55-64 .. ..	660	920
Over 65 .. ..	190	430

##### OE SOPHAGEAL MALIGNANCY

Age-group	Males	Females
35-44 .. ..	11	2
45-54 .. ..	8	5
55-64 .. ..	7	4
Over 65 .. ..	5	1

##### RATE PER 100,000 PER ANNUM

Age-group	Males	Females
35-44 .. ..	51.5	13.4
45-54 .. ..	74.1	64.9
55-64 .. ..	212.1	87
Over 65 .. ..	526.3	46.5

##### CANCER IN LOCAL BANTU

Frere Hospital, East London, In-patient Register, 1952 to 1956

	Urban	Rural	Total
Nasal Sinuses .. ..	8	18	26
Tongue .. ..	15	25	40
Mouth .. ..	10	18	28
Oesophagus .. ..	31	28	59
Cervix .. ..	33	50	83
Breast .. ..	7	29	36
Other Sites * .. ..	59	71	130
	163	239	402
Oesophagus % .. ..	19	11.7	14.7

\* Other primary sites. Skin: sq. ca. nodule 7, rodent ulcer 5, malignant melanoma 4. Lips 7. Stomach 1, gall bladder 1, pancreas 1, liver 6, colon 8, rectum 1. Kidney 2, bladder 1. Prostate 7, penis 1. Uterus 9, ovary 1. Pharynx 6, Larynx 2, lungs 3, bronchus 1. Thyroid 7. Mandible (adamantinoma) 5, chondrosarcoma 3, osteosarcoma 4. Eye 1. Leukaemia 4.

Secondaries, primary not determined. Metastases in glands: various 8, omentum 5. Malignant cells in aspirated fluids: pleuritic 6, ascitic 8. 'Carcinomatosis' 5.

SUMMARY

This is a study of 104 cases of oesophageal malignancy among Bantu who attended the Frere Hospital, East London, from 1952 to 1956.

The diagnosis was established histologically in only 25% of cases. The factors which must always restrict the carrying out of diagnostic procedures in local Bantu are analysed.

Case-histories are compiled and initial symptoms tabulated. Insidious spread of oesophageal neoplasia into the thorax, at an early stage of malignancy, accounts for the frequency of retrosternal pain (35.6%) and chronic unproductive cough (27%), which head the list of initial symptoms.

Stamped mealies, a food peculiar to local Bantu, was proved to be a smooth diet. Thermal traumatization of the oesophagus was at first discredited because, in the Bantu, oral heat tolerance, analogous to temperature preference, was found to be within normal range.

The topographical distribution of urban cases was that 90% were confined to one location, wherein they occurred in circumscribed groups. Fringe cases, at first considered to be ancillary to the main concentrations, turned out to be associated with the clay-pits in which were found buried drums for fermenting *cidiviki*.

Preparation of this vicious brew is described and its 'secret' ingredients are enumerated. Soporific acetylene and enough solvents to leach out carcinogens suspected to be present in the ¼-inch coating of R.C.2. drums, the receptacles in which *cidiviki* is fermented, are evolved.

The residue in R.C.2. drums, containers used exclusively for the distribution of cut-down petroleum-asphalt, is therefore indicated.

This indictment is based upon the strong, albeit circumstantial, evidence of a strictly localized occurrence and high incidence of oesophageal malignancy among Bantu in East London. Final proof of this grave charge depends upon further research into the carcinogenic activity of *cidiviki*, as at present brewed, and animal experimentation.

The structure of the population-at-risk was recently (1955) surveyed by an anthropologist. A reliable assessment was thus possible of the sex-age incidence of oesophageal malignancy among Bantu who had attended the Frere Hospital, East London, and who had lived in our East Bank location. The incidence rate must be one of the highest ever recorded.

The author wishes to thank the Medical Superintendents of the Frere Hospital, East London, and of the Grey Hospital, King William's Town, for access to their hospital records.

He also wishes to thank ear, nose and throat colleagues on the honorary staff of the Frere Hospital, Dr. J. W. Morgenthal and Dr. J. M. Marquard, for permission to publish details of their Bantu cases.

He is indebted to Dr. H. H. Bloch, in charge of the Department of Radiology, Frere Hospital, who undertook most of the barium-swallow examinations, and particularly for his having reviewed reports and radiographs of all other cases.

Dr. Bloch and Dr. M. M. Friedman, Border Pathologist, gave the author the benefit of their constructive opinion throughout. Their sustained interest was both encouraging and stimulating.

The author is grateful to Mr. G. P. K. Thornton, biochemist to the Municipality of East London, for his helpful criticisms on special problems which continually arose out of this study.

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Mr. P. Venter, manager of Native Affairs Administration of the Municipality of East London, was generous in his technical advice and efficient in his organizing of delicate follow-up.

Acknowledgement is specially due to the Native Commissioner at East London, Mr. J. G. Pike, for his invaluable direction in some intricate matters of local Bantu custom.

Finally, the author wishes to thank Dr. D. H. Reader for his readiness to discuss anthropological aspects of the problem and for his exceptional kindness in supplying vital statistics (yet unpublished) of the Bantu population-at-risk, without which the precise incidence of oesophageal malignancy in the East Bank location could not have been assessed.

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## THE ROLE OF THE ANAESTHETIST IN THE TREATMENT OF ACUTE BARBITURATE POISONING\*

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The problem of acute barbiturate poisoning has become one of increasing magnitude in the past 20 years, with the development of hundreds of derivatives of barbituric acid, their widespread use as hypnotics and sedatives, and the easy availability of large quantities to the lay public in many

countries. In 1936 in the USA 80 tons of barbiturates were sold<sup>1</sup> and 266 people died of acute barbiturate poisoning;<sup>2</sup> the present-day figure is 2,000 tons sold annually,<sup>3</sup> with 1,140 deaths in 1954. In England in 1931, out of a total of 5,147 suicides, only 0.46% were due to the barbiturates; in 1951 of 4,469 suicides 8.1% were by barbiturates; whilst in 1952 the figures were 14.1% out of 4,338.<sup>4</sup>

\* Based on a paper presented at a symposium on the Treatment of Acute Barbiturate Poisoning, Glasgow, December 1956.



The patient who has taken an overdose of barbiturates will present in one of 3 ways:

1. The patient who immediately realizes his mistake or alternatively who decides he wants to live after all, and rushes off to his doctor or hospital. He will be conscious and rational, with a normal pulse, blood pressure and respiration.

2. The more severe case who is stuporose but rousable by painful or unpleasant stimuli. He may be cyanosed or have a respiratory abnormality, and the blood pressure may be normal or low.

3. The deeply comatose patient, unrousable, with diminished or absent reflexes, respiratory abnormality, often cyanosed, and a blood pressure which is very low or even unrecordable.

For many years, the standard treatment for a patient who had, wittingly or unwittingly, taken an overdose of a barbiturate, was the use of analeptic drugs, in the mistaken belief that these latter were direct antagonists of the barbiturates. Until Kilian<sup>5</sup> in 1931 suggested the use of nikethamide to antagonize an overdose of barbiturates, the commonly used stimulants were camphor and caffeine. Since then numerous reports have appeared describing the use of various drugs, the more popular being nikethamide (coramine),<sup>6-9</sup> pentylene-tetrazol (metrazol, cardiazol, pentosol),<sup>9, 11, 12</sup> and picrotoxin,<sup>13-16</sup> with strychnine being recommended by French workers.<sup>17-19</sup> The mortality rate in these reports varies widely, the average being somewhere between 15% and 25%, although in a few it has been as high as 63%.<sup>20</sup>

Besides the high mortality with this method of treatment, it has been shown that these analeptics, after a brief period of stimulation, have a depressant effect on the central nervous system, which may accentuate the central depression caused by the barbiturates.<sup>21, 22</sup>

Thus the use of analeptics as the basis of the treatment of barbiturate poisoning seems at best of doubtful value, and there is no doubt at all that their supposed antagonism was the indirect cause of many unnecessary deaths, because the importance of artificial respiration and oxygenation was overlooked.<sup>23</sup> The realization of this factor is a more recent development in the therapy of these cases, and has been particularly practised in Denmark and Sweden, where the rate of poisoning by barbiturates is very high. It is in the application of this form of treatment that the anaesthetist's special knowledge can be of great value to his colleagues and to the patient.

The first type of patient described above, the very mild one, does not usually come within the scope of the anaesthetist; he should have his stomach washed out, be given a saline cathartic and possibly an emetic, and be admitted to hospital for observation (24 hours) of his level of consciousness, pulse, blood pressure and respiration. In passing it may be noted that a central emetic such as apomorphine hydrochloride may fail to act if the brain is depressed by a barbiturate.

There has been some discussion in the literature recently on the advisability of gastric lavage in these patients. It has been condemned because very little barbiturate may be recovered, and the washing-out may have the effect of pushing the drug on into the intestine; therefore only aspiration of the stomach contents is recommended.<sup>24</sup> Certainly, of course, if the patient is unconscious any attempt at lavage will be dangerous unless a cuffed endotracheal tube is in position; even the passage of a stomach tube for the purpose of aspiration may produce vomiting and inhalation of stomach contents.

When the anaesthetist considers the more severe type of patient, the one who is stuporose or comatose, he finds that there is very little to distinguish him from the anaesthetized patient in the operating theatre. Both are unconscious, both with their central nervous systems depressed by a potent drug or drugs, and exhibiting a varying degree of respiratory depression and possibly depression of the cardio-vascular system as well. The anaesthetist deals with such cases every day, and yet it is in only a very few centres that he is called in to help with the treatment of severe poisoning.

To the anaesthetist, the first principle (and the one on which all else depends) in the treatment of the unconscious patient, whether he be a case of acute barbiturate poisoning or an anaesthetized patient, is the provision of an adequate supply of oxygen to the tissues.<sup>25</sup> Air or oxygen must first reach the alveoli in sufficient amount, and then it must enter the blood stream and be carried to the areas which need it. In other words, the treatment must be directed towards (1) the maintenance of adequate respiration, and (2) the maintenance of adequate circulation.

#### THE MAINTENANCE OF ADEQUATE RESPIRATION

##### 1. Provision of Oxygen

I believe that one should not wait for cyanosis to appear before applying oxygen; it should be given in every case of poisoning in which the patient is unconscious. It may be administered by double nasal catheters, Tudor Edward spectacles, B.L.B. mask, or the polymask (Fig. 1). The last is a very comfortable type of inhaler of plastic material, cheap in cost, and as it is used once only, its use removes all problems of infection and sterilization.



Fig. 1. The Polymask in use.

The oxygen must always be passed through a humidifier to prevent drying of the mucosa and possible necrosis, and the flow rate should be at least equal to the patient's minute respiratory volume, i.e. 6-10 litres per minute.

##### 2. Care of the Airway

Even if there is no respiratory depression, the state of unconsciousness together with some degree of relaxation of muscles produces the possibility of obstruction to the airway; this must be carefully guarded against, and the jaw should be

continually inserted. measures and it may ensure a should not although untoward

##### 3. Assistance

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##### 4. Removal

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continually supported, if necessary, or a pharyngeal airway inserted. Where there is respiratory depression, more active measures may have to be undertaken in addition to these, and it may be necessary to pass an endotracheal tube to ensure a free airway. This should be changed daily and should not be left in for more than 48 hours if at all possible, although one has been left in for more than 8 days without untoward effects.<sup>26</sup>

### 3. Assisted Respiration

Some form of assisted ventilation may have to be applied, and this can be most simply done in an emergency by using a face mask attached to an expiratory valve and bag with an oxygen cylinder providing fresh gas (Fig. 2). This method



Fig. 2. Showing the method of emergency artificial ventilation.

can be applied for prolonged periods and, if properly done, will have no harmful effects other than tiring the anaesthetist; for this latter reason only, the use of a mechanical device, such as the 1956 model of the Pask respirator, which is triggered to respond to the patient's inspirations, may be indicated. The ventilation should be done if possible with a mixture of 50% oxygen and 50% air, to prevent the washing out of nitrogen.

### 4. Removal of Secretions

An almost inevitable consequence of prolonged unconsciousness and respiratory depression will be the accumulation of secretions in the pharynx and trachea. The swallowing and cough reflexes will be depressed or absent, and the patient may literally drown in his own secretions; if these are less profuse there may still be anoxia from pure mechanical obstruction of the airway.

The best treatment is, of course, prevention by good general nursing, and the unconscious patient should be nursed on his side in the Trendelenburg position, and turned every 2 hours. The pummelling and thumping of the chest employed by physiotherapists may be useful in loosening and draining secretions. In addition, an antibiotic such as penicillin should be given from the onset to prevent lung infection.

If there are secretions in the mouth and pharynx, these should be sucked out, every 2 hours or more often, and it may be necessary to pass a cuffed tube to prevent their access

to the trachea. The tube will also allow the trachea and bronchi to be efficiently sucked out, and the best type of catheter is the one used during bronchoscopy aspiration, which has a hook on the end to allow access to either bronchus (Fig. 3). Points to watch in the performance of this suction are:

(a) The introduction of pathogenic organisms into the trachea and bronchi should be avoided—the catheter should be sterile, washed out after use and re-sterilized by boiling.

(b) Additional perforations near the end of the catheter will reduce the risk of trauma to the mucosa by small segments being drawn into the catheter.

(c) If the mucus is viscid and difficult to remove, a detergent such as Alevaure will make it more watery and easier to aspirate.

(d) Atropine should of course be avoided to prevent drying of secretions.

As part of the prevention of congestion of the lung bases (which may lead to pulmonary oedema), it is recommended that the patient with respiratory depression should have his ventilation assisted by some means for a period of perhaps 20 minutes in each hour, whether or not pulmonary oedema or congestion is present. This will have the effect of diluting and washing out the residual air, it will produce full expansion of the thorax, thus preventing minor degrees of atelectasis, and it will prevent the appearance of, or produce a reduction in, any pulmonary congestion that may be apparent.<sup>27</sup>

### 5. Special Investigations

The following bedside procedures are advocated as being of great value, both in the initial assessment of the degree of respiratory depression, and in following the progress of treatment:

(a) Spirometry tracings with a spirometer, such as the Benedict-Roth.

(b) Estimation of the CO<sub>2</sub> content of expired air is easy and quick to perform with the B.O.C. analyser, which is accurate enough for the purpose (Fig. 4).

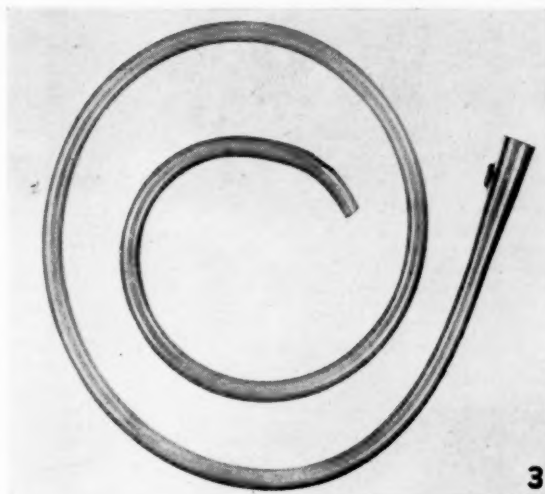


Fig. 3. Bronchoscopy aspiration catheter, showing the hook on the end to allow access to either bronchus.

It would be appropriate at this point to consider the question of  $\text{CO}_2$  accumulation in the body. For many years now it has been recommended that a patient who has respiratory depression should be given a mixture of 95%  $\text{O}_2$  and 5%  $\text{CO}_2$ , in an attempt to stimulate the respirations.<sup>28</sup> This treatment, however, is now regarded as completely wrong treatment.<sup>29</sup> The barbiturates depress the breath-regulating mechanism, and the earliest function impaired is the ability to respond to  $\text{CO}_2$ . By the time respiratory depression has appeared and artificial ventilation becomes necessary, the tension of  $\text{CO}_2$  in the alveoli and in arterial blood will already be high. The administration of  $\text{CO}_2$  to such a patient will not stimulate respiration; it will merely increase his  $\text{CO}_2$  tension to even higher levels and inevitably produce  $\text{CO}_2$  poisoning. It should be remembered that  $\text{CO}_2$  was the first gaseous anaesthetic administered surgically (by Hickman in 1824).

(c) Arterial oxygen saturation may be measured with any of the numerous types of oximeters available.

#### THE MAINTENANCE OF ADEQUATE CIRCULATION

The unimpeded access of adequate oxygen to the alveoli having been secured, it is important to ensure that it reaches the tissues, and therefore the state of the circulation must be carefully assessed and watched. The barbiturates in large doses will depress the vasomotor centre, causing peripheral vasodilation and a fall in blood pressure. If the patient does not die of respiratory depression in the initial stages, this circulatory depression may lead to his death unless it is corrected.

An intravenous infusion should be started if indicated, and if there is no response by the blood pressure after a few hundred ml., a vasopressor should be given. Methylampheta-

mine (methedrine) is a popular choice, as it has some central stimulant effect as well as its action on the blood vessels; in fact, it has been advocated by some writers as the analeptic of choice in the treatment of these cases.<sup>30</sup> It has, however, a vasodilator component in its action on the cardiovascular system, which may produce a fall in the diastolic pressure, and the tachycardia which often accompanies its injection may be undesirable; the vasopressor response to methedrine also diminishes with each successive dose (tachyphylaxis). The intravenous dose is 5-10 mg.

A better vasoconstrictor is probably phenylephrine (neosynephrine), in an intravenous dose of 0.8 mg. It has a pressor effect, which may last up to an hour, and is usually accompanied by a bradycardia due to reflex vagal stimulation.<sup>31</sup> It also does not lose its efficacy as a pressor agent upon repeated administration.

1-Noradrenaline (levophed, arterenol) is of great value for the treatment of persistent severe hypotension, usually administered by continuous intravenous infusion, 4 ml. of the commercially available solution being diluted to 1,000 ml. in 5% dextrose or 0.9% sodium chloride (final concentration 4 micrograms of noradrenaline base per ml.). The rate of infusion is adjusted according to the pressor response, but it should be noted that, because of its potential power of producing ectopic cardiac rhythms, it may be dangerous to 'push' the drug if the expected response is not produced with the initial solution. Cases have also been reported of necrosis and gangrene at the site of infusion of noradrenaline.<sup>32, 33</sup>

The amount and type of fluid administered needs of course to be controlled by the level of the electrolytes, the output of the urine and the state of the lungs.

It is worth stressing here that the restoration of adequate oxygenation and ventilation may by itself improve the circulation considerably, and thus make the use of infusions and vasopressors unnecessary.

In 1951 Nilsson<sup>26</sup> described the treatment of 176 cases of acute barbiturate poisoning following the above regime, without the use of analeptics. Of these, 129 were unconscious on admission or at a later stage, and 3 of them died, giving a death rate of 2.3% which compares most impressively with the death rate where the analeptics form the main line of treatment. Locket and Angus (1952) had 2 deaths in a series of 64 cases treated conservatively (a death rate of 3.1%) and Clemmesen<sup>34</sup> described 21 deaths out of 1,276 cases (1.6%).

The introduction in 1955 of aminophenazole (daptazole) and  $\beta\beta$ -methyl-ethyl-glutarimide (NP 13, megimide, beme-gride) by Shulman *et al.*<sup>35</sup> seems to have opened a new vista in the treatment of barbiturates, as these drugs appear to act as specific antagonists to the barbiturates, rather than just as central stimulants, although this is still open to question.<sup>36</sup> Megimide has also been shown to produce convulsions in some cases, like the other central stimulants.<sup>37</sup> However, even where these drugs form the main line of attack, the most important aspect of the successful treatment of these cases must still be the provision, before every other consideration, of adequate ventilation where necessary.

#### SUMMARY

The treatment of a case of acute barbiturate poisoning by the so-called conservative method should be directed towards:—



Fig. 4. The B.O.C. Carbon Dioxide Analyser in use.

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## I. The maintenance of adequate respiration:

1. Provision of oxygen
2. Care of the airway
3. Assisted or controlled respiration if necessary
4. Prevention of congestion:
  - (a) Good general nursing care
  - (b) Physiotherapy
  - (c) Antibiotics
  - (d) Removal of secretions
  - (e) Artificial ventilation for 20 minutes in each hour

## II. The maintenance of adequate circulation:

1. Intravenous infusions
2. Vasopressors
3. Control of electrolytes

## III. In addition the following special investigations should be carried out:

1. Spirometry tracings
2. CO<sub>2</sub> expired air concentrations
3. O<sub>2</sub> saturations

The anaesthetist's special training and experience in the above procedures equip him admirably to deal with this problem, and the patient's recovery may depend on close cooperation between the anaesthetist and his medical colleagues.

My thanks are due to Dr. A. C. Forrester, Senior Lecturer in Anaesthetics, University of Glasgow, for his great help and criticism at all times; and to Mr. Towler, Medical Photographer at the Royal Infirmary, Glasgow, for the photographs.

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## RECONSTRUCTION OF TEAR SAC

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It is generally accepted that dacryocystorhinostomy is the operation of choice for dacryocystitis that fails to respond to more conservative therapy. Treatment of the epiphora when the sac has been obliterated or removed is a more difficult problem. Canaliculo-rhinostomy has been advocated. However, of the 5 cases in which I have done this operation, the anastomosis closed in 3 after a few months, and in 2, although patency has been maintained (after several years follow up), the epiphora has not been relieved, although one patient said there was a partial improvement. This suggests that a suction action of the lacrimal sac is necessary, and prompted the attempt of plastic reconstruction of the sac as described below.

## CASE REPORT

The patient, a young woman, had had the sac removed several years before and although the purulent discharge was cured,

she was upset by a persistent epiphora. A canaliculo-rhinostomy had also been tried and had failed.

The usual dissection as for a dacryocystorhinostomy was done under general anaesthesia. The hiatus in the bone previously made was defined and enlarged with punch forceps until an area of muco-periosteum about  $\frac{1}{2} \times \frac{1}{4}$  inches was exposed from the opening of the nasolacrimal canal below and the posterior lacrimal crest behind. As much as possible of the scar tissue of the previous surgery was excised especially round the blind end of the conjoined canaliculi (sinus of Maier). The occluded end of the latter was then removed by scissors.

An oblong of mucous membrane about  $1 \times 1.5$  cm. was now dissected from near the sulcus of the lower lip. The bare area was almost covered by undermining and using sliding flaps raised mainly from the sides. Although a little puckering and shortening of the inside of the lip occurred, by the time healing was complete it looked quite normal.

The mucosal graft was then wrapped, epithelial surface inwards, round a sufficient quantity of 'Gelfoam' to form a sac. The free edges were stitched with interrupted  $6 \times 0$  plain catgut sutures. Before completing the third side a little more Gelfoam was packed into the sac to fill it completely but without undue stretching,

and a few drops of penicillin solution were added. A little of the long side was left free of stitches for anastomosis with the sinus of Maier.

A probe was passed through the lower canaliculus into this hiatus in the sac to give the proper alignment and the latter was then sutured to the nasal muco-periosteum. This was done by means of 2 posterior and 2 anterior 6×0 catgut sutures to obtain apposition between the sac and nasal mucosa over a relatively broad vertical strip. Care was taken not to penetrate the cavities of the sac and nose with these sutures. The probe was then withdrawn and the conjoined canaliculus was anastomosed by means of a posterior and an anterior suture to the hiatus left in the lateral wall of the sac. The wound was closed in layers. The orbicularis oculi and medial canthal ligament were sutured over the sac to the periosteum coming down from the nasal bone and in a few places a superficial bite was also taken of the nasal muco-periosteum just anterior to the sac. A few subcutaneous catgut sutures were inserted and the skin closed with continuous silk.

A gentle pressure-bandage was applied, and the patient was placed on parenteral antibiotic therapy. On the 3rd day a probe was gently passed; it entered the sac easily. The skin suture was removed on the 5th day, and the patient allowed home on the 7th day.

For another week there was swelling over the sac area resembling a mucocoele. After 4 weeks the sac was gently irrigated through the lower canaliculus. Fluid returned *via* the upper punctum and

the sac could be felt to be filling. At the end of the 2nd month the sac was opened into the nose. A needle-knife was carefully passed through the lower canaliculus into the sac and the nasal mucosa was pierced. The needle could be seen in the nose, and the nasal mucosa was then incised vertically using a No. 12 B.P. curved blade. A squint hook, used as a probe, determined the position of the sac walls and the slit-opening was then enlarged in breadth with scissors.

There has been a marked improvement, dusty days only causing epiphora (4 months post-operatively). However, the region of the sac is still somewhat stiff; gentle massage is expected to soften this allowing active suction by the sac instead of just a syphon action.

#### SUMMARY

A technique of plastic reconstruction of the lacrimal sac is described. It was fashioned by wrapping a mucosal graft obtained from the mouth round a matrix of 'Gelfoam' and suturing the free edges.

The sac was then stitched to the nasal muco-periosteum in the position of the normal sac and anastomosed to the conjoined canaliculus. The opening into the nose was not made until 2 months later.

### FACULTY OF MEDICINE, UNIVERSITY OF NATAL

At the meeting of Federal Council held in Johannesburg on 27-29 March 1957, on consideration of the proposed transfer of the Durban Medical School from the University of Natal (as it would have been effected by the Separate University Education Bill as originally introduced), and on consideration of the resolution on the subject transmitted by the Natal Coastal Branch,<sup>1</sup> Federal Council passed the following resolutions unanimously:

'1. That as the Medical Association of South Africa is vitally interested in medical education in South Africa, it views with

grave concern the implications arising out of the decision of the Government in its Separate University Education Bill, in which it intends to sever the Faculty of Medicine from the University of Natal, and appeals to the Government to reconsider this decision.

'2. That the Minister of Education be requested to receive a deputation from this Association.'

1. Report (1957): S. Afr. Med. J., 31, 179.

### SOUTH AFRICAN MEDICAL CONGRESS, DURBAN, 16-21 SEPTEMBER 1957

The office-bearers of the scientific sections are as follows:

	Chairman	Vice-Chairman	Secretary
Anaesthetics	Dr. T. A. Fuller, Bergvliet	Dr. J. C. Nicolson, Johannesburg	Dr. K. H. Foord, Durban.
Chest Diseases	Dr. B. Van Lingen, Johannesburg	Mr. G. R. Crawshaw, Johannesburg	Mr. I. Barnat, Durban.
Dermatology	Dr. L. J. A. Loewenthal, Johannesburg	Dr. J. Leeming, Durban	Dr. S. H. Fine, Durban.
General Practice	Dr. C. Coswald Brown, Vryheid, Natal	Dr. R. Schaffer, Queenstown, Cape	Dr. C. Weinberg, Durban.
Hospital Administration	Dr. E. F. H. Mohr, Bloemfontein	Dr. K. F. Mills, Johannesburg	Dr. L. Feitelberg, Durban.
Industrial and Military Medicine	Dr. A. J. Orenstein, Johannesburg	Brigadier J. H. Rauch, Pretoria	Dr. D. Lapping, Durban.
Medicine	Prof. F. Forman, Cape Town	Dr. T. Schneider, Johannesburg	Dr. T. G. Armstrong, Durban.
Neurology, Psychiatry and Neuro-Surgery	Dr. S. M. Katz, Johannesburg	Dr. L. A. Hurst, Krugersdorp	Dr. B. Crowhurst Archer, Durban.
Obstetrics and Gynaecology	Dr. W. Waddell, East London	Dr. H. Renton, Durban	Dr. H. Pretorius, Durban.
Ophthalmology	Dr. J. Graham Scott, Johannesburg	Dr. J. G. Louw, Cape Town	Dr. M. Park-Ross, Durban.
Orthopaedics	Mr. J. G. du Toit, Pretoria	Mr. W. T. Ross, Johannesburg	Mr. J. G. Bickerton, Durban.
Otorhinolaryngology	Dr. D. J. Roux, Cape Town	Mr. J. W. Morgenthal, East London	Mr. G. H. Caiger, Durban.
Paediatrics	Dr. S. N. Javett, Johannesburg	Dr. William Emdin, Cape Town	Dr. P. Klenerman, Durban.
Pathology	Prof. J. Barnetson, Pretoria	Prof. B. J. P. Becker, Johannesburg	Dr. Lindsay Walker, Durban.
Physical Medicine	Dr. A. Reichlin, Newlands, Cape	Dr. J. Struan Alexander, Durban	Dr. M. R. Gitlin, Durban.
Public Health	Dr. H. Nelson, Pretoria	Dr. E. D. Cooper, Cape Town	Dr. A. Stephen, Durban.
Radiology	Dr. J. N. Jacobson, Cape Town	Dr. Nathan Sacks, Durban	Dr. G. S. Andrews, Durban.
Surgery	Mr. W. H. D. Trubshaw, Johannesburg	Mr. C. A. R. Schulenburg, Pretoria	Mr. N. R. Butcher, Durban.
Urology	Mr. S. Scher, Cape Town	Mr. E. Lipworth, Johannesburg	Mr. V. N. Larsen, Durban.

The following Council at 1957.

1. Pruden
  2. Syfret's
  3. U.L.A.
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At its meeting confirmed the Committee for aid societies. Certain for aid societies and distribut Considerin be printed i so as to kee Tariff Book. names to the of the issue c

Medical Ho Cape Town 13 April 1957

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## OFFICIAL ANNOUNCEMENT : AMPTELIKE AANKONDIGING

## MEDICAL AID SOCIETIES

The following new medical aid societies were approved by Federal Council at its meeting held at Johannesburg on 27-29 March 1957.

1. Prudential Medical Aid Scheme, P.O. Box 1097, Johannesburg.
2. Syfret's Medical Aid Society, 24 Wale Street, Cape Town.
3. U.L.A. Medical Aid Society, P.O. Box 4589, Johannesburg.

A complete list of approved medical aid societies will be published in the *Journal* at the same time as the new Tariff Book is issued.

## NEW TARIFF OF FEES

At its meeting held on 27-29 March 1957 the Federal Council confirmed the tariff of fees which had been revised by the Central Committee for Contract Practice in conjunction with the medical aid societies. This tariff is to come into operation on 1 July 1957.

Certain formalities have still to be completed with medical aid societies but it is hoped to have the new Tariff Book printed and distributed by the above date.

Considering that a revised list of medical aid societies has to be printed in the *Journal* after each Federal Council meeting so as to keep it up-to-date, the list will not be included in the Tariff Book. Members of the Association should add the above names to the present list, and they will be advised in due course of the issue of the *Journal* in which the complete list will appear.

L. M. Marchand  
Associate Secretary

Medical House  
Cape Town  
13 April 1957

## MEDIESE HULPVERENIGINGS

Op sy vergadering van 27-29 Maart 1957, te Johannesburg gehou, het die Federale Raad onderstaande nuwe mediese hulpverenigings goedgekeur:

1. Prudential Medical Aid Scheme, Posbus 1097, Johannesburg.
2. Syfret's Medical Aid Society, Waalstraat 24, Kaapstad.
3. U.L.A. Medical Aid Society, Posbus 4589, Johannesburg.

'n Volledige lys van goedgekeurde verenigings sal in die *Tydskrif* verskyn teen die tyd wat die nuwe Tariefboek uitgegee word.

## NUWE TARIEFBOEK

Op sy vergadering van 27-29 Maart 1957 het die Federale Raad die tarief, wat die Sentrale Komitee i.v.m. Kontrakpraktyk in medewerking met die mediese hulpverenigings hersien het, bekragtig. Hierdie tarief sal op 1 Julie 1957 in werking tree.

Sekere formaliteite moet nog met hulpverenigings afgehandel word, maar die verwagting is dat die nuwe tariefboek gedruk en uitgegee sal word teen daardie tyd.

Siende dat 'n hersiene lys van mediese hulpverenigings na elke Federale Raadsvergadering in die *Tydskrif* gepubliseer moet word om dit op datum te hou, sal die lys nie in die tariefboek ingesluit word nie. Lede van die Vereniging moet die bogenoemde lys by die teenswoordige lys voeg en hulle sal mettertyd in kennis gestel word in watter uitgawe van die *Tydskrif* die volledige lys sal verskyn.

L. M. Marchand  
Medesekretaris

Mediese Huis  
Kaapstad  
13 April 1957

## IN MEMORIAM

HENRY MEREDITH GRIFFITHS, F.R.C.S. (EDIN.)

Dr. B. Isaacson, of Cape Town, writes: By the death of Henry Meredith Griffiths on 31 March, the medical profession has lost one of its most distinguished members.

After qualifying M.R.C.S., L.R.C.P. in 1910, at Cardiff and King's College, London, he spent about 18 months in an extensive colliery practice at Newport, Wales, as an assistant to an

elder brother. He then came to South Africa on account of his health and became attached to the Albany Hospital, Grahamstown. After 2-3 years he returned home and obtained the F.R.C.S. (Edin.) in 1914. Immediately thereafter he joined up in the first world war and was mentioned in despatches. After serving on the Western Front and taking part in the Battle of the Somme, where sometimes an array of 20 compound fractures of the femur would have to be set by him alone, he was transferred to Northern Italy as a surgical specialist (24 C.C.S.) with the rank of captain. At the close of the war he became attached to the Alder Hey Hospital in Liverpool, where he concentrated on orthopaedics. He then returned to the Albany Hospital, Grahamstown, where his original position had been kept open for him, and where he took a special interest in general surgery. Thereafter he joined the Basutoland Medical Service

It was there that I had the good fortune to meet and work with him, coming in contact with him almost daily.

His past experience in the army and in his brother's practice served him well for, in addition to the excellent service he was giving to his company, he soon built up an extensive private practice. Although he was held in considerable awe yet many patients from the surrounding districts and from Cape Town came to seek his advice. His medical colleagues would seek his opinion in difficult cases.

Dr. Griffiths' inherent integrity, fairmindedness and high professional standards won him universal respect and affection. He was impatient of petty complaints and malingerers but was untiringly attentive in cases of urgency and danger. He gave his life completely and selflessly to his work, the humble and the mighty receiving the same devoted care, and often the poor in addition to the medical services rendered free would receive a parcel of foodstuffs from him sent anonymously. His car was the swiftest in the district and it was his custom to operate at 6.30 a.m. His wife, a nursing sister to the late Bland Sutton, whom he met while on active service at the front, was constantly there to assist. Such was his devotion to duty that 24 hours after the news of the loss of his only son in World War II, he was at his post as usual, operating. I watched him, and when it was over he looked towards the window and all that he said was how glad he was that his boy had always been upright while alive.

Dr. Griffiths was twice the President of the Drakenstein Division of the Medical Association, and during that time he invited at his expense the whole Western Province Branch to Paarl to a dinner in honour of the late Dr. Frank Bester and in recognition of the services he had rendered. When a clinical meeting was held at Somerset West he entertained his colleagues lavishly. He was shy of public speaking but he had very definite views.

He was a keen student almost until the end. When, about 7 years ago, he went to Boston to seek advice, he was so much on



Dr. H. M. Griffiths

and from there he proceeded in 1924 to Somerset West, where, he was appointed Medical Officer to the Cape Explosives.

fire with the intense medical activity that was going on there that he returned in his late sixties for further postgraduate work and became a Clinical Fellow in Surgery at the Massachusetts General Hospital. He left Somerset West for Cape Town about 1946, and from then until the end, although he had stopped operating, many of his ex-patients from the Hottentots' Holland area would come to consult him.

He was buried from the little church at Faure as simply and unostentatiously as he had lived. His was a life conducted in the best tradition of the profession, liberal in his outlook, humane and compassionate to his fellow beings, and highly skilled and erudite in his work.

Those of us who were privileged to know him very well will never forget him, and to his wife we extend our deepest sympathy.

## PASSING EVENTS : IN DIE VERBYGAAN

**Federal Council Reports.** In the last issue of the *Journal* on pp. 387-394 by a typographical error the references to other pages in the same issue made in footnotes to Federal Council Reports were wrongly cited. Four should be added to each of these page numbers quoted as follows: For 384 read 388, for 385 read 389, for 386 read 390, for 388 read 392 for 389 read 393, and for 390 read 394.

**Dr. Leonard Sagorin, M.R.C.P. (Edin.), D.C.H. (Eng.),** Paediatrician, formerly in practice in Great Britain and at Johannesburg, has joined Dr. Frank Walt in practice at 126 Trust Buildings, Gardiner Street, Durban. Telephones: rooms 2-7728, after hours 2-9326, residence 88-8521.

**Dr. Leonard Sagorin, M.R.C.P. (Edin.), D.C.H. (Eng.),** spesialis in kindersiektes, wat voorheen in Groot Brittanje en Johannesburg praktiseer het, praktiseer nou saam met dr. Frank Walt by Trust-Gebou, 126, Gardinerstraat, Durban. Telephone: spreekkamers 2-7728, na-ure 2-9326, woning 88-8521.

**Research Forum, University of Cape Town.** The next meeting of the Research Forum will be held on Wednesday, 1 May 1957 in the A-Floor lecture theatre, Groote Schuur Hospital, Cape Town, at 12 noon. The speaker will be Prof. R. J. Goetz, and his subject 'Diagnosis and Treatment of Abdominal Aneurysms'.

**Unie van Suid-Afrika. Departement van Gesondheid.** Aangifte van ernstige epidemiese siektes en poliomiëlitis in die Unie gedurende die tydperk 5 April 1957 tot 10 April 1957.

	Poliomiëlitis				
	Bl.	Nat.	Kl.	As.	Totaal
Transvaal ..	4	6	—	—	10
Kaapprovinsie ..	11	5	13	—	29
Oranje-Vrystaat ..	—	—	—	—	—
Natal ..	6	9	—	—	15
Totaal ..	21	20	13	—	54

*Pes, Pokkies, Tifuskoors:* Geen

## REVIEWS OF BOOKS : BOEKRESENSIES

### SEQUEIRA'S DISEASES OF THE SKIN

*Sequeira's Diseases of the Skin.* Sixth Edition. By John T. Ingram M.D. (Lond.), F.R.C.P. (Lond.) and Reginald T. Brain, M.D. (Lond.), F.R.C.P. (Lond.). Pp. xii + 843. 63 Coloured Plates and 426 Text Figures. 105s. London: J. & A. Churchill Ltd. 1957.

**Contents:** Introduction. I. The Normal Skin. Anatomy and Physiology. II. Morphology of Skin Diseases. III. Congenital Abnormalities. *Cutaneous Affections in General Diseases.* IV. Vitamin, Metabolic and Endocrine Disorders. V. Circulatory Disorders—Vascular and Lymphatic. VI. The Reticuloses. *Systemic and Constitutional Disorders.* VII. Introduction. Eczema. VIII. The Seborrhoeic Dermatoses. IX. Psoriasis. Pityriasis Rubra Pilaris. X. Neurodermatoses. XI. Lichen Planus, Lichen Nitidus. XII. The Dyschromias. XIII. Toxic Eruptions. XIV. Dermatitis Herpetiformis, Pemphigoid and Pemphigus. XV. Eruptions Due to Drugs. XVI. Erythrodermia and Generalised Exfoliative Dermatitis. XVII. Scleroderma and Systemic Sclerosis. *The Effects of External Irritants.* XIX. Mechanical and Physical Agents. XX. Chemical Irritants. XXI. Medico-legal Aspects of Occupational Dermatoses. *Infections.* XXII. Animal Parasites. XXIII. Plant Parasites. XXIV. Acute Infections. XXV. Chronic Infections. XXVI. Chronic Infections. XXVII. Chronic Infections. XXVIII. Chronic Infections. (Tropical). XXIX. Viral and Rickettsial Diseases. *Atrophies, Hypertrophies and Tumours.* XXX. Atrophies Including Lichen Sclerosus and Leukoplakia. XXXI. Hypertrophies and Tumours. *Diseases of the Appendages of the Skin.* XXXII. The Sebaceous Glands, Hair Follicles, and Sweat Glands. XXXIII. The Nails. Appendix I. Principles of General Treatment and Formulae. Appendix II. Principles of Local Treatment and Formulae. Appendix III. Principles of Physiotherapy. Index.

It is good to see our old friend, Sequeira's Diseases of the Skin, in its new guise. The high standard of the text originally set by Sequeira has been maintained by the present authors, Ingram and Brain, though the inclusion of many very old photographs and coloured paintings does not parallel the great modern advances in colour photography.

On page 34, the busy practitioner will find some invaluable practical hints on diagnosis. There is a good chapter on medico-legal aspects of occupational dermatoses. The collagen diseases are well dealt with, and the uses and side-effects of the steroid

hormones are mentioned in the relevant portions of the text and in a few succinct paragraphs towards the end of the book.

Some good references, though not always the best, are given at the end of each section but, in this regard, it seems a pity that the outstanding work of Barnes and of Dean in porphyria in South Africa is not quoted. There is no allusion, either, to the dangers of barbiturate drugs in porphyrias.

Sarcoidosis follows hard on the heels of the tuberculoderms and, while there is still great argument about its possible tuberculous etiology, surely the time has come for it to be classified with the reticuloses, to which it bears a far greater resemblance than it does to tuberculosis.

Whether they be but briefly mentioned or discoursed upon at greater length, all the important recent advances and modern trends in dermatology, with special accent laid on their close relationship to general medicine, will be found by the careful searcher in this admirable and comprehensive text-book.

J.J.W.

### BIOLOGICAL DATA

*Handbook of Biological Data.* WADC Technical Report 56-273 —Astia Document No. AD 110501. Edited by William S. Spector. Pp. xxxv + 548. Wright Air Development Center, Air Research and Development Command, United States Air Force, Wright-Patterson Air Force Base, Ohio. Qualified requesters may obtain copies of this report from the ASTIA Document Service Center, Knott Building, Dayton 2, Ohio. This report will be published under the same title by the W. B. Saunders Company, Philadelphia, in October 1956, and will be offered for sale to the general public.

This handbook presents tables, graphs, charts and diagrams relating to data in zoology, botany and the basic medical sciences. It represents a condensation of some 20,000 pages of data and the

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cooperation of some 7,000 biological scientists who served as contributors, advisers and reviewers. It is truly a monumental work and is as useful as it is fascinating. Here will be found all the answers. To mention a few: the physical and chemical characteristics of the proteins, the chemical composition of sebum, synovial fluid, tears, pollen and nectar; the chromosome number of *Xenopus laevis*, the genetics of the blood groups, the life span of animals; vitamins, calories, pathways of metabolism, theories of blood coagulation, liver function tests; antimetabolites, antibiotics, toad venoms, radio-isotopes; and so on. There is an extensive and comprehensive table of contents and a detailed index. The reviewer confidently predicts that it will become a classic. All biological and medical libraries, general and departmental, should acquire a copy.

H.Z.

YEAR BOOK OF MEDICINE

*Year Book of Medicine—1956-57 Series.* Edited by Paul B. Beeson, M.D., Carl Muschenheim, M.D., William B. Castle, M.D., Tinsley R. Harrison, M.D., Franz J. Ingelfinger, M.D. and Philip K. Bondy, M.D. Pp. 744. 118 Figures. \$6.75. Chicago: Year Book Publishers, Inc., 1956.

*Contents: Part I. Infections.* Chemotherapy of Infection—General. Chemoprophylaxis of Infection. Candida Infections Following Antibiotics and Cortisone. Cortisone in Treatment of Infections. Staphylococcal Infections. Clostridial Infections. Salmonella Infections. Diarrheal Infections. Urinary Tract Infections. Bacteremia Due to Enteric Organisms. Subacute Bacterial Endocarditis. Tetanus. Rickettsial Diseases. Poliomyelitis. Herpes Zoster. Virus Tissue Culture in Clinical Diagnosis. 'New' Viruses. Mycotic Infections. Miscellaneous Infections. Nervous System Manifestations. Section on Fascinating Names. Miscellaneous. *Part II. The Chest.* Anatomy. Physiology. Emphysema. Hamman-Rich Syndrome. Wegener's Granulomatosis (and Periarthritis Nodosa) Pneumoconiosis. Neoplasms. Lung Abscess. Mycoses. Pleurisy. Pneumothorax. Tuberculosis. Miscellaneous. *Part III. The Blood and Blood-forming Organs.* General Considerations and Special Techniques. Hemolytic Anemias. Pernicious and Other Nutritional Macrocytic Anemias. Hypochromic Anemia. Other Anemias. Polycythemia. Leukocytosis and Leukopenia. Leukemia and Related Disorders. Vascular and Thrombocytopenic Purpuras. Coagulation Defects. Drug-Associated Blood Dyscrasias. *Part IV. The Heart and Blood Vessels and the Kidney.* Congenital Heart Disease. Rheumatic Heart Disease and Valvular Disease. Hypertension. Coronary Disease. Arrhythmias. Electrocardiography. Pathologic Physiology. Miscellaneous. Cerebral Vascular Disease. Peripheral Vascular Disease. The Kidney. *Part V. The Digestive System.* Esophagus. Stomach and Duodenum. Intestines. Liver. Gallbladder and Pancreas. *Part VI. Metabolism.* The Adrenal Glands. The Thyroid Gland. Carbohydrate Metabolism. Calcium, Phosphorus and the Parathyroid Glands. The Pituitary Gland. Growth, Weight and Nutrition. Metabolic Diseases. Lipid Metabolism.

The Year Book of Medicine is already so well known as to need no introduction, and in reviewing the present volume it is sufficient to say that it lives up to the high standard established in the past. It consists of summaries of papers from the world literature on subjects grouped under various headings, frequently with footnotes by the Editors. The papers selected for inclusion are, in general, very well chosen, although the readers may feel that too little attention is paid to papers published outside America. This,

however, is so common amongst American publications that one can scarcely cavil at it in this particular book. The Editors often include papers on controversial subjects which give very different and even opposite opinions and conclusions, and their comments then are especially apt, informative and often amusing. Thus the comment on page 459 on a paper dealing with Ileocolitis states 'as everyone knows since the event of June, 1956, in Washington, the medical profession doesn't know beans about ileitis'. These brief and authoritative comments add considerably to the value of the book. In short, the Year Book continues to offer excellent value in presenting a concise and useful summary of much of the best literature of the year in all fields of medicine. It can be unreservedly recommended, especially to the busy practitioner who wishes to keep abreast of the enormous present-day medical writing.

H.M.

SURGERY OF THE HAND

*Surgery of the Hand.* Third Edition. By Sterling Bunnell, M.D. Pp. xv + 1079. 1047 Illustrations and 9 Color Plates. £7 7s. 6d. net. London: Pitman Medical Publishing Co., Ltd. 1956.

*Contents: Part I. The Hand.* 1. Phylogeny and Comparative Anatomy. 2. The Normal Hand. *Part II. Reconstruction of the Hand.* 3. Examination of the Hand. 4. Reconstruction of the Hand. 5. Skin and Flexion Contractures. 6. Bones. 7. Joints. 8. Nerves. 9. Tendons. 10. Intrinsic Muscles of the Hand: Loss of the Thumb: Methods of Repairing. 11. The Arm in its Relation to the Hand. *Part III. Injuries and Infections of the Hand.* 12. Injuries of the Hand. 13. Injuries of the Hand: Fractures and Dislocations. 14. Infections of the Hand. 15. The Hand in Industry. *Part IV. Other Conditions of the Hand.* 16. Congenital Deformities. 17. Vasomotor and Tropic Conditions. 18. Tumors of the Hand, by L. D. Howard, Jr., M.D. Index.

As a result of the extensive industrialization of South Africa there has been an ever-increasing number of hand injuries. Throughout the world, interest in hand surgery is constantly widening. Much of the original work and thought in this subject is directly attributable to Sterling Bunnell. The reviewer recalls a lecture given by the author in London shortly after the last war, when the main lecture-hall of the Royal Society of Medicine was filled to overflowing, and distinguished surgeons were sitting on the floor like undergraduates, at the feet of this great hand-surgeon.

This book is so well known and has been so extensively reviewed that it needs only to be mentioned how this 3rd edition differs from its forerunners. Many of the chapters have been revised and new material introduced, there being 190 additional pages, and over 200 new illustrations.

It remains only to remind readers of the very fine work performed in reconstructive hand-surgery by American surgical teams during the last war and to add how many of these surgeons had been trained either by Bunnell, personally or his close associates, to emphasize this living reminder of Bunnell's great work.

If ever one could say about a book that it is a 'classic' and a 'must' it is surely about this one. No surgeon who has even the slightest contact with hand surgery can afford to miss reading it.

A.S.

BOOKS RECEIVED : BOEKE ONTVANG

*Relaxation and Exercise for Natural Childbirth.* By Helen Heardman. Pp. 32. 22 Figures. 1s. net + 3d. postage abroad. Edinburgh and London: E. & S. Livingstone Ltd. 1956. *Bulletin of the World Health Organization.* Vol. 15. No. 1-2. *Epidemiology.* Pp. 359. 10s. Genève: World Health Organization. 1956. *Bulletin of the World Health Organization.* Vol. 15. No. 3-4-5. *Malaria.* Pp. 862. 10s. Genève: World Health Organization. 1956. *Advice to the Expectant Mother on the Care of her Health and that of her Child.* Eleventh Edition. By F. J. Browne, M.D., D.Sc., F.R.C.S.E., F.R.C.O.G. and J. C. McClure Browne, B.Sc., M.B., B.S., F.R.C.S.E., F.R.C.O.G. Pp. 48. 1s. net + 3d. postage abroad. Edinburgh and London: E. & S. Livingstone Ltd. 1957. *The Management of Abdominal Operations.* Vols. I and II. Second Edition. Edited by Rodney Maingot, F.R.C.S. Pp. xvi + 1432. Illustrations 540 in 444 figures. £8 net. London: H. K. Lewis & Co. Ltd. 1957.

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## CORRESPONDENCE : BRIEWERUBRIEK

## POLIOMYELITIS VACCINATION

*To the Editor:* It is noted from the concluding paragraph of a report by your Parliamentary correspondent entitled 'Polio-myelitis Vaccine', which appears on page 317 of your *Journal* of 30 March

1957, that the Minister of Health is reported to have said in reply to a question raised by Col. O. L. Shearer, member for Pietermaritzburg City, in the House of Assembly that the period between the first and second inoculations should not be longer than 4-6 weeks and between the second and third inoculations,

6 months, and effects.

The reply not entirely to invite you position has generally co inoculations between the without hav

It will be your *Journal* position with tions.

P.O. Box 3 Cape Town 9 April 1957

*To the Editor:* L. Kaplan, best form of far as our

Dr. Kaplan, a scheme of a nurse car or aeroplane and an in actuated by Aga or the with a fittit prone possi is the man lung. (Dr. lightness an

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6 months, and that it could be shorter without causing any ill effects.

The reply given by the Minister on that occasion was, however, not entirely correct owing to a misunderstanding, and I wish to invite your attention to column 2623 of *Hansard* where the position has subsequently been correctly stated, namely, 'It is generally considered that the period between the first and second inoculations should not be shorter than from 4-6 weeks and between the second and third, 6 months. It can also be longer without having harmful effects'.

It will be appreciated if this correction can be published in your *Journal* so that your readers may be apprised of the true position with regard to the length of intervals between inoculations.

J. J. du Pré le Roux  
Secretary for Health

P.O. Box 3879  
Cape Town

9 April 1957

POLIOMYELITIS RESPIRATOR CASES

To the Editor: I am rather disappointed that, apart from Dr. L. Kaplan,<sup>1</sup> no one has taken up the challenge concerning the best form of treatment for certain types of poliomyelitis, i.e. so far as our present knowledge goes.

Dr. Kaplan raises some interesting points about the importance of position during transit, the dangers of long distances etc. Modelled upon the set-up by Dr. Anderson of Ruchill Hospital Glasgow, who is responsible for polio cases of the whole southern and western half of Scotland, we have organized in the Rhodesias and Nyasaland, where there are similar problems of distances, a scheme in which, in life-endangering cases, an anaesthetist and a nurse can go out from the respiratory centre in an ambulance or aeroplane and return with the patient. Endotracheal tubes and an intermittent positive-pressure respirator (IPPR) pump actuated by compressed air or oxygen (such as the Poliomat, the Aga or the Pask, which are all light and easy to handle), together with a fitting to a stretcher to give semi-postural drainage in the prone position, are all that is necessary. Of course an anaesthetist is the man best qualified to secure adequate ventilation of the lung. (Dr. Anderson favours the Swedish Aga IPPR pump for lightness and compactness in travel by ambulance etc.)

Incidentally, I prefer to use the commoner universal term IPPR rather than IPPV, if for no other reason than that it is the method of respiration which is positive or, in the case of the tank respirator, which is negative. The actual ventilation in the alveoli, where the gaseous exchange takes place, is positive with both machines, and the only real negative or suction effect of the tank respirator ends in the bronchioles and in a wet case may have the effect of drawing the secretions of the tracheal and bronchial ducts down to the end of that negative influence, which obstructs ventilation, causes hypoxia followed by cerebral oedema, and so sets up a vicious circle.

In the dry case the tank respirator acts more closely to the physiological method of breathing than any other but, to take an extreme case, it would not help a man totally submerged in water to tell him to apply the normal physiological method of breathing.

I have studied Professor Lassen's published figures and have seen quite a number of his chronic cases, still in hospital since 1952. Many of these would undoubtedly have been dead but for the early performance of tracheotomy. Professor Lassen's final analysis of the life-endangering types of poliomyelitis indicates that (a) of the patients who succumbed, many died within 24 hours and a large percentage (over 70%) died within 7 days; and (b) of those that survived, only a small proportion (20-25%) are helplessly paralysed and are still requiring artificial respiratory aid, 35-40% have severe sequelae and are chronics requiring help, and some 36-40% are completely free or have only slight paralysis and are able to pursue useful occupations. His mortality rates in the 1952 epidemic are as follows:

The case mortality in Copenhagen as a whole amongst patients with paralysis was 8.2% (13.5% for the rest of Denmark). Of a total number of 2,899 cases in Copenhagen, the paralytic cases were 1,280.

Let us take Professor Lassen's figures for life-threatening poliomyelitis, 318 in number. It must be noted that these were

cases of life-threatening degree fit for reception in hospital and not cases where life becomes threatened by delay in operating, retention in the tank respirator after becoming wet, etc. The figures are shown in the following table.

TABLE XXIX. MORTALITY RATES—NEW METHODS OF TREATMENT INTRODUCED 26 AUGUST 1952: DATE OF REFERENCE 1 JANUARY 1956

Group	Period of Admission to Hospital	No. of Cases	Died	Per Cent
I	7 July-25 August .. ..	30	26	87
After manual bag respiration introduced.				
II	26 August-7 September ..	50	25	50
III	8-23 September .. ..	50	23	46
IV	24 September-5 October ..	50	22	44
V	6-20 October .. ..	50	15	30
VI	21 October-6 November ..	50	18	36
VII	7 November-19 December ..	50	13	26
VIII	20 December-2 March ..	18	2	11
Total II-VIII .. ..		318	118	37

The decreasing mortality is due to the fact that gradually we were able to cope more and more effectively with the dangerous complications. It is our firm impression that the character of the life-threatening cases was uniformly severe throughout the whole epidemic period.<sup>2</sup>

It is true that many cases are left with a bleak outlook. I saw Professor Trueta's chronics still in hospital. He and Dr. Agerholm only get these after the acute phase and so I presume are unable to judge the necessity for or best form of life-saving measures. I also saw some 25 cases in Professor Lassen's wards, some existing on glossopharyngeal (frog) breathing. In reply to the thought that these might be better dead, Professor Lassen's remark was, 'Ask them'. The reply was an emphatic, 'No', they were quite happy and interested in life. I think this and Professor Lassen's figures are an adequate answer to the supposition by Professor Trueta and Dr. Agerholm that tracheotomy is, in certain cases, an impossible solution.

May I quote W. Ritchie Russell, from whom Professor Trueta receives many of his post-acute polio cases: 'It is, however, becoming evident that for cases which are not being handled safely by either of these older methods (postural drainage or tank respirator) IPPR with a cuffed tracheotomy tube will save lives which will otherwise be lost'.<sup>3</sup> He admits the risks, immediate and remote. Let us turn to an American writer (Dr. Albert S. Bower), who reports on 18,000 cases in California. He writes:

'Regardless of the disease entity, tracheotomy is indicated whenever this procedure alone will establish and maintain an adequate airway for proper gaseous respiratory exchange. It prevents the patient from being asphyxiated by his own secretions. In the respiratory inadequacies of poliomyelitis complicated by hypopharyngeal pooling of secretions, generally with the loss of the cough reflex co-existent due to concurrent bulbar involvement, suctioning of the naso- or oro-pharynx usually is inadequate to meet the requirements of physiological breathing, and then tracheotomy is the necessary answer to the problem of providing a clear airway'.<sup>4</sup>

The War Office in the UK issued several very useful A.M. Directorate Bulletins during the last war. A second series of these has commenced and No. 1 deals with the management of poliomyelitis and gives, in a concise form (20 pages), an admirable approach to this subject.

If this could be adopted by our respective Governments and widely dispersed to medical practitioners who are not closely or frequently involved with the diagnosis and treatment of poliomyelitis, a uniform standard of early correct diagnosis and treatment to counteract the fatigue and risks of transport etc. would, I believe, save many lives. It would certainly lighten the heavy burden thrown on hospital personnel if cases could be received in a condition which gave one the opportunity of applying remedial measures in time to ensure a sporting chance of recovery.



It is in the wet Bulbar case that long-distance travel presents the greatest hazard.

Humidification to the point of saturation will, I believe, prevent many of the complications of tracheotomy. Just as one is struck with the fact that the earlier a case with failing respiration (lowered vital capacity etc.) is afforded the relief of the tank respirator to muscles not yet fatigued, the quicker (as a rule) is the patient able to leave the tank respirator, so, if tracheotomy is applied early before fatigue has occurred or vomit has been aspirated, with ensuing lung necrosis, the sooner can the tracheotomy tube be removed for progressive periods until dispensed with altogether.

There are undoubtedly hazards with IPP; apart from the risk of local infection, there is always the danger of atelectasis or of necrosis of the trachea where the cuff presses or where the end of the tube itself may impinge on the trachea if the external parts are pulled or weighted to one side.

If the respiratory function is adequate without artificial aid, humidification is still necessary, and is more difficult to apply than when incorporated into a positive-pressure circuit.

Regular readings of the blood pressure, vital capacity, tidal volume and minute volume are essential and will give warning of a commencing atelectasis, pulmonary oedema etc.

A van Slyke and flame photometer are essential to give records of the  $\text{CO}_2$  combining power of the blood and of the electrolyte balance.

The Radcliffe No. 2 positive-negative pressure pump with spirometer and humidifier complete is ideal for ward work, whereas the Poliomat, which we used 3 years ago, has been relegated to use for short periods during travel etc., with compressed air or oxygen as the motive power.

The Beaver IPP pump is very useful for convalescents who can work the mouth-piece themselves for interrupted tonic fillips.

The Coventry humidifier, made by the Cape Engineering Co., Warwick, England, with thermostat etc. is reliable and more or less fool-proof and the Bright nebulizer used with Aleaire or trypsin is first-class for liquefying tacky secretion or as a preliminary to the assisted-cough technique to relieve a threatened or established atelectasis. Finally, the tracheotomy tube, with all these disadvantages, occupies half the dead space and does permit easy bronchoscopy and suction.

Since writing the foregoing I have read with great pleasure the most excellent article published in the *Journal* of 9 March 1957 by Dr. Beric Jackson.<sup>5</sup> His description of the physiological essentials in treatment are in exact conformity with the teaching and lessons I learnt during a study tour of respiration centres in the UK and the Continent last year. Dr. Jackson is to be congratulated upon a timely and comprehensive article which should be of immense value in securing some conformity of treatment and improved technique in one of the most difficult of all medical or surgical emergencies.

J. Melvin

European Infectious Diseases Hospital  
Gatooma Road  
Salisbury  
23 March 1957

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2. Lassen, H. C. A. (1956): *Management of Life-Threatening Poliomyelitis*, p. 150. Edinburgh and London: Livingstone.
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#### ANEURISMA VAN DIE ABDOMINALE AORTA

*Aan die Redakteur:* Eers nadat ek vandag my brief oor bogenoemde onderwerp in u uitgawe van 6 deser<sup>1</sup> gelees het, het ek besef dat ek my skuldig gemaak het aan 'n pligsversuim deurdat ek nie daarin melding gemaak het nie van die onontbeerlike hulp wat ek in dié besondere geval van prof. H. R. Goetz, Hoof

van die Afdeling Chirurgiese Navorsing van die Universiteit van Kaapstad, ontvang het. Ek haas my dan nou om hierdie versuim reg te stel deur professor Goetz vir sy waardevolle hulp te bedank. Nie alleen het hy 'n aortogram van die pasiënt vir my geneem nie, maar het ook die polivinil-protese vervaardig op die spesiale lees wat hy vir dié doeleinde gebruik. Daarby het hy sy lees na die operasiesaal geneem om desnoods 'n ander protese te maak en het hy ook nog waardevolle hulp by die operasie verleen.

Teenoor dr. P. A. Foster wil ek my dank uitspreek vir die uiters bekwame wyse waarop hy die moeilike narkose waargeneem het en teenoor drs. J. J. W. van Zyl en R. le S. van der Riet vir hulp by die operasie, en teenoor dr. van Zyl ook vir die illustrerende tekening.

F. D. du T. van Zyl

Mediese Sentrum 405  
Heerengracht  
Kaapstad  
14 April 1957

1. Van Zyl, F. D. du T. (1957): S. Afr. T. Geneesk., **31**, 348.

#### MEDICAL REPRESENTATIVES

*To the Editor:* The circular which has recently arrived from a reputable firm on the subject of visits by their representatives makes me write again.

I was responsible for the first letter on this subject<sup>1</sup> which caused 'strong views' to be expressed by many for or against. May I therefore be permitted to repeat that my suggestion was to find a *modus vivendi*. Nothing has apparently been attempted in this direction before.

This well-known and respected firm intimate that they will only make 4 calls a year on us. Presumably all the other firms trading in this country will do the same. Just visualize, Sir, what this will mean to us! I feel that there is no valid reason why we should be disturbed by such frequent visits from any firm, in addition to the innumerable circulars arriving by every mail. What are we going to do with all those 'samples' which have become a problem after only 2 visits a year? If we are to be disturbed systematically in the fashion suggested in the circular, I shall no doubt not be the only one to refuse, in the most polite terms, to interview any representative.

May I suggest as a *modus vivendi* that at least in the major centres such propaganda talks should be delivered at Medical Association meetings, when some of us might be prepared to listen; though if the majority of members were not it might, of course, greatly reduce the attendances.

It will not surprise me if before long some firms arrange dinner-meetings with after-dinner talks. They would no doubt be well attended, and perhaps some of us would be prepared to give them musical honours! It would not cost the firms much more than at present and might perhaps show better results in their sales. It is of course only a suggestion . . .

Physician

1. *Physician*: (1956): S. Afr. Med. J., **30**, 852.

#### DIE SIVIELE SAAK TEEN DR. M. GODDEFROY

*Aan die Redakteur:* Langs hierdie weg wil die Tak O.V.S. en B. van die Mediese Vereniging graag al die kollegas, wat so gulhartig bygedra het tot die Dr.-Marius-Goddefroy-fonds, na sy onlangse ongelukkige hofsak, van harte bedank. Die oproepe van drs. R. Theron en C. D. Brink is goed ontvang. Alle bydraers sal nog persoonlik bedank word.

Die firma Sandoz, oor wie se produk die geding gegaan het, het nou 'n ruim bydrae tot dr. Goddefroy se geregtelike onkoste gemaak en sy onkoste is tans ten volle deur bydraes gedek.

Kollegas word dus nou vriendelik gevra om nie langer enige bydraes aan my of dr. Goddefroy te stuur nie. Indien u van plan was om nog 'n bydrae te stuur of miskien reeds 'n bedrag ingesamel het om te stuur, wil ons aan die hand doen dat u 'n kontribusie tot die Liefdadigheidsfonds van die Mediese Vereniging van Suid-Afrika maak.

Posbus 834  
Bloemfontein  
22 Maart 1957

C. V. van der Merwe  
Ere-Sekretaris  
Tak Oranje-Vrystaat en Basoetoland

Kaapstad,  
Weeklik

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